ASHLAND

Richmond L. Williams
Chief Counsel - Environmental Litigation
Law Department

Ashland Inc.
500 Hercules Road
Wilmington, DE
Phone: 302-594-7020; Fax: 302-594-7038
or 302-594-7315
rlwilliams@ashland.com

May 28, 2015

VIA FEDERAL EXPRESS

Kenneth Talton
Enforcement Officer
Superfund Enforcement Assessment Section (6SF-TE)
United State Environmental Protection Agency, Region 6
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

Re: SBA Shipyard Superfund Site

Dear Mr. Talton:

The following is in response to the U.S. Environmental Protection Agency's ("EPA") Request for Information ("RFI") directed to Ashland Petroleum Company ("APC") and Ashland Oil Company ("AOC") c/o Ashland Inc. ("Ashland") regarding the SBA Shipyard Superfund Site ("Site") located at 9040 Castex Landing Road, Jennings, Louisiana.

Ashland Oil and Refining Company was incorporated in Kentucky on October 22, 1936. It changed its name to Ashland Oil, Inc. on February 2, 1970. It later changed its name to Ashland Inc. on January 27, 1995. APC was an unincorporated division of Ashland. Accordingly, the responses to this RFI are being submitted on behalf of Ashland.

In 1998, Ashland and Marathon Oil formed a joint venture called Marathon Ashland Petroleum, LLC ("MAP"). At that time, the assets that were contained in APC and AOC were contributed to MAP. All records relating to those businesses were transferred to MAP. On June 30, 2005, Ashland transferred its interest in MAP to Marathon Oil Corporation and all records remained with MAP. Accordingly, documents relating to APC and AOC are no longer within Ashland's possession, custody, or control. Upon information and belief if they still exist, such records would be in the possession of Marathon Oil Company.

Ashland understands that the RFI is intended to seek information and records including, but not limited to, any dealings or transactions that Ashland have or had with the Site, Louis Smailhall, Suzanne Smailhall, LEEVAC Shipyards, Inc., n/k/a Bunge Street Properties, LLC, and LEEVAC Industries, LLC n/k/a LEEVAC Shipyards Jennings, LLC ("Site Related Entities"). Ashland understands the Site operated from 1965 to 1993 ("Relevant Time Period"). Accordingly, it has limited its search for information and records regarding the Site to the Relevant Time Period. However, Ashland did not limit its search regarding the Site Related Entities and searched for all currently available records.

As you may know, Ashland participated as a member company of SSIC Remediation, L.L.C. ("SSIC"). On December 9, 2002, SSIC entered into an Order and Agreement ("Agreement") for Interim Measures/Removal Action ("IM/RA") of Hazardous/Principal Threat Wastes at the Site (ASH00001 to ASH00017) with EPA to perform certain clean-up activities at the Site. In 2005, EPA deemed that cleanup activities at the Site were successfully completed pursuant to the Agreement, and SSIC member companies would not be called upon or required to make further contribution towards any additional clean-up activities at the Site (ASH00018 to ASH00020). Further, the Provision No. 5 of the Agreement states:

> "The parties agree, and by entering into this Agreement EPA intends, that SBA, its President, Mr. Louis Smailhall, SSIC and the members of SSIC are entitled, as of the effective date of this Agreement, to protection from contribution actions or claims for the actions or matters addressed by Section 3008(h) of RCRA and memorialized by this Agreement."

In 1997, Ashland formalized its corporate Records and Information Management Policy (ASH00021 to ASH0024) to maintain a system to ensure the proper maintenance and disposition of its records and documents. Pursuant to the Policy, records are retained as long as required for (a) business operations or archival purposes or (b) to satisfy legal or regulatory obligations, as reflected in the Records Management Master Schedule. Once the retention period for a record has expired, the record is disposed of. The retention period for information and records sought by EPA dating back fifty (50) years may have expired.

In responding to the RFI, Ashland has undertaken a diligent and good faith effort to obtain and review all available current and archived corporate records known to exist at this time that may contain information responsive to this RFI. Ashland's response was prepared from information gathered from available corporate records and publicly available information. Ashland supplemented that information by consulting employees with knowledge of Ashland's business. The results of such review are described below.

GENERAL OBJECTIONS

Ashland asserts the following general objections to the RFI and reserves all rights, defenses, privileges, protections and objections with respect to its responses to the RFI. Ashland incorporates by reference the foregoing general objections into each of its responses to the individual information requests to the extent applicable, and will therefore not restate such objection within all individual responses.

1. Ashland objects to the RFI to the extent that it seeks information that is not in Ashland's possession, custody or control. Subject to this objection, Ashland has reviewed information currently available to Ashland and relevant to the RFI. Ashland expressly states that its response to the RFI is limited by the current availability of information, and reserves the right to supplement, modify and/or amend its response if new or additional information becomes available.

2. Ashland objects to the RFI to the extent documents and/or information requested seek attorney/client communications, work product or any other documents or information protected from disclosure pursuant to any applicable privilege. Ashland specifically reserves all rights to assert legally recognized privileges to protect against the disclosure of information including, without limitation, the attorney-client privilege and the protection from disclosure pursuant to the work product doctrine. Ashland does not waive any such right or privilege by its response to the RFI, and hereby specifically asserts such privileges and protections as applicable. The inadvertent disclosure of privileged documents, or disclosure of documents labeled as privileged but initially deemed to be mislabeled, shall not waive any applicable privilege available to Ashland.

3. Ashland objects to any requirement to produce documents or information already in the possession of USEPA, Region 6, or of another government agency or is otherwise already in the public domain.

4. Based upon its review of the RFI, Ashland regards individual components of the RFI as vague or ambiguous. By way of example only, the RFI is vague or ambiguous to the extent that it does not define various terms or purports to define terms other than by their commonly understood meaning. Ashland specifically states that it has provided responses to the RFI based upon its understanding of the requests and the common usage of specific terms not otherwise defined.

5. Ashland objects to the extent that the RFI, including the "Instructions" contained therein, purports to impose on Ashland's obligations beyond those established under the authority of Section 104(e). Authority under Section 104(e) authorizes USEPA to seek information relating to the following: (A) the identity, nature and quantity of materials that may have been treated, stored, or disposed of at a vessel or facility or transported to a vessel or facility, (B) the nature and extent of a release or threatened release or a hazardous substance or pollutant or contaminant at or from a vessel or facility and (C) information relating to the ability of a person to pay for or to perform a cleanup.

6. Ashland objects to the RFI's definition of "documents" to the extent it extends to documents not in Ashland's possession, custody, or control. Ashland disclaims any responsibility to search for, locate, and provide EPA copies of any documents not in Ashland's possession, custody, or control.

7. Ashland objects to the definition of "you," "yours" and "Respondent" because the terms are overbroad and it is not possible for Ashland to answer questions on behalf of all the persons and entities identified therein.

EPA's General Information Requests and Ashland's Responses

1. Provide the full legal name and mailing address of the Respondent.

Response:

Ashland Inc.
50 East RiverCenter Blvd.
Covington, KY 41012

2. Identify and provide the full name, title, business address, and business telephone number for each person answering these questions on behalf of the Respondent, and each person(s) that was relied on or consulted with in the preparation of the answer.

Response:

Richmond L. Williams
Chief Counsel, Environmental Litigation
Ashland Inc.
500 Hercules Road
Wilmington, DE 19808
302.594.7020 (phone)
rlwilliams@ashland.com

Mary A. Donahue
Senior Paralegal
Ashland Inc.
5200 Blazer Parkway
Dublin, OH 43026
614.790.3319 (phone)
madonahue@ashland.com

Inger L. Mitchell
Sr. Real Estate Specialist, Corporate Real Estate
Ashland Inc.
*Ms. Mitchell may be contacted through Richmond L. Williams

Julie Heckman
Compliance System Associate
Ashland Inc.
*Ms. Heckman may be contacted through Richmond L. Williams

Greg Hill
Global Master Data Manager
Ashland Inc.
*Mr. Hill may be contacted through Richmond L. Williams

Trina Parsons
Purchasing Specialist
Ashland Inc.
*Ms. Parsons may be contacted through Richmond L. Williams

Matt E. Kalat
Senior Buyer – Purchasing
*Mr. Kalat may be contacted through Richmond L. Williams

Valerie E. Moore
Sr. Purchasing Specialist
Ashland Inc.
*Ms. Moore may be contacted through Richmond L. Williams

3. If Respondent wishes to designate an individual for all future correspondence concerning this Site, including legal notices, please provide the individual's name, address and telephone number.

Response:

Richmond L. Williams
Chief Counsel, Environmental Litigation
Ashland Inc.
500 Hercules Road
Wilmington, DE 19808
302.594.7020 (phone)
rlwilliams@ashland.com

With copies to:

Mary A. Donahue
Senior Paralegal
Ashland Inc.
5200 Blazer Parkway
Dublin, OH 43026
614.790.3319 (phone)
madonahue@ashland.com

4. If Respondent is a business, please give a brief description of the nature of the business.

Response:

Ashland is a global specialty chemical company.

EPA's Requests for Documents and Ashland's Responses

1. Please identify any dealings or transactions you have or had with SBA Shipyard, Inc., Louis Smailhall, Suzanne Smailhall, LEEVAC Shipyards, Inc., n/k/a Bunge Street Properties, LLC, and LEEVAC Industries, LLC n/k/a LEEVAC Shipyards Jennings, LLC. Please provide a brief description of the nature of those dealings or transactions and the timeframe during which those dealings and transactions occurred.

a. Specifically, provide dates of when you sent or moved something to the Site and the name and contact information of the person who made such arrangement.

Response:

In addition to the General Objections set forth above, Ashland objects to Question No. 1 on the basis that the question is outside the scope of Section 104(e) to the extent that it seeks information that does not relate to a release or threat of release of hazardous substances to the environment at the Site. Also, the terms "dealings" and "moved" are ambiguous.

Notwithstanding the foregoing, and without any waiver of its objections, Ashland states that it located a list provided by the Site identifying information involving fifteen (15) barges that were allegedly sent to the Site by APC between 1987 and 1995 (ASH00025 to ASH00026). Among other things, the list identifies the barge cargoes as petroleum products which fall under CERCLA'S petroleum exclusion.

After a diligent search and review of Ashland's records known to exist at this time and consulting with its employees, it has not located any independent records or information that Ashland had any business relationship with the Site, Louis Smailhall, Suzanne Smailhall, LEEVAC Shipyards, Inc., n/k/a Bunge Street Properties, LLC, and LEEVAC Industries, LLC n/k/a LEEVAC Shipyards Jennings, LLC.

Documents relating to APC and AOC are no longer within Ashland's possession, custody, or control. Upon information and belief if they still exist, such records would be in the possession of Marathon Oil Company.

2. Please provide any and all documents in your possession that are related to the dealings and transactions detailed in Question 1 above.

Response:

See ASH00025 to ASH00026 which is a list provided by the Site identifying information involving fifteen (15) barges that were allegedly sent to the Site by APC between 1987 and 1995 Among other things, the list identifies the cargoes as petroleum products and fall under CERCLA'S petroleum exclusion.

3. If any of the dealings or transactions described involve hazardous materials, please include a detailed listing of such materials, the material safety data sheets, dates of transaction, and any quantity associated with those materials.

Response:

See ASH00025 to ASH00026. Ashland is unable to locate material safety data sheets or other records regarding the petroleum products identified on ASH00019 to ASH00020 other than material safety data sheets for "Cumene" (see ASH00083 to ASH00129).

4. Please describe in detail any involvement you had with the 2002 RCRA Interim Measures/Removal Action (IM/RA) at the Site. Please provide any and all documents in your possession related to the IM/RA, including, but not limited to, a list of the parties involved in the IM/RA.

Response:

Ashland participated as a member company of SSIC Remediation, L.L.C. ("SSIC"). On December 9, 2002, SSIC entered into an Order and Agreement ("Agreement") for Interim Measures/Removal Action ("IM/RA") of Hazardous/Principal Threat Wastes at the Site (ASH00001 to ASH00017) with EPA to perform certain clean-up activities. In 2005, EPA deemed that cleanup activities at the Site were successfully completed pursuant to the Agreement. Further, EPA indicated that SSIC member companies would not be called upon or required to make further contribution towards any additional clean-up activities at the Site (ASH00018 to ASH00020).

5. Please provide the names, title, and contact information of anyone, including, but not limited to, employees, who may possess knowledge and information regarding this Site and/or your own business operations.

Response:

In addition to the General Objections set forth above, Ashland objects to Question No. 5 on the basis that the question is overbroad in scope, unauthorized by law, and unduly burdensome. Ashland is a diversified business entity with global operations dating back before the 1920s, including various divisions, subsidiaries and affiliates, including entities acquired through various corporate acquisitions. The request seeks information that is far beyond that which is needed to determine: (A) the identification, nature, and quantity of materials which have been or are

generated, treated, stored, or disposed of at a vessel or facility or transported to a vessel or facility; (B) the nature or extent of a release or threatened release of a hazardous substance or pollutant or contaminant at or from a vessel or facility; and (C) information relating to the ability of a person to pay for or to perform a cleanup.

Ashland does not have any information responsive to the appropriate scope of this request other than that contained in ASH00025 to ASH00082.

Documents relating to APC and AOC are no longer within Ashland's possession, custody, or control. Upon information and belief if they still exist, such records would be in the possession of Marathon Oil Company.

6. Identify all of the individuals who currently have and those who have had responsibility for the Respondent's environmental matters (e.g., responsibility for the disposal, treatment, storage, recycling, or sale of the Respondent's wastes). This information shall include, but not limited to, the following:

    a. Each individual's job title and duties (including the dates performing those duties).

    b. The supervisors for such duties,

    c. The current position of the date of the individual's resignation, and

    d. The nature of the information possessed by such individuals concerning the Respondent's waste management.

    e. The contact information of the individual.

Response:

In addition to the General Objections set forth above, Ashland objects to Question No. 6 on the basis that the question is overbroad in scope, unauthorized by law, and unduly burdensome. Ashland is a diversified business entity with global operations dating back before the 1920s, including various divisions, subsidiaries and affiliates, including entities acquired through various corporate acquisitions. The request seeks information that is far beyond that which is needed to determine: (A) the identification, nature, and quantity of materials which have been or are generated, treated, stored, or disposed of at a vessel or facility or transported to a vessel or facility; (B) the nature or extent of a release or threatened release of a hazardous substance or pollutant or contaminant at or from a vessel or facility; and (C) information relating to the ability of a person to pay for or to perform a cleanup.

Documents relating to APC and AOC are no longer within Ashland's possession, custody, or control. Upon information and belief if they still exist, such records would be in the possession of Marathon Oil Company.

7. Does the Respondent's company or business have a permit(s) issued under RCRA? If so, provide a copy(ies) of the permit(s).

Response:

In addition to the General Objections set forth above, Ashland objects to Question No. 7 on the basis that the question is overbroad in scope, unauthorized by law, and unduly burdensome. Ashland is a diversified business entity with global operations dating back before the 1920s, including various divisions, subsidiaries and affiliates, including entities acquired through various corporate acquisitions. The request that Ashland provide permits issued under RCRA to Ashland seeks information far beyond that is needed to determine: (A) the identification, nature, and quantity of materials which have been or are generated, treated, stored, or disposed of at a vessel or facility or transported to a vessel or facility; (B) the nature or extent of a release or threatened release of a hazardous substance or pollutant or contaminant at or from a vessel or facility; and (C) information relating to the ability of a person to pay for or to perform a cleanup.

Notwithstanding the foregoing, and without any waiver of its objections Ashland states that it complies with all federal, state and local permit and/or registration requirements for the transport and/or disposal of materials.

Documents relating to APC and AOC are no longer within Ashland's possession, custody, or control. Upon information and belief if they still exist, such records would be in the possession of Marathon Oil Company.

8. Provide all Resource Conservation and Recovery Act (RCRA) Identification Numbers issued to Respondent by EPA or a state for Respondent's operations.

Response:

In addition to the General Objections set forth above, Ashland objects to Question No. 8 on the basis that the question is overbroad in scope, unauthorized by law, and unduly burdensome. Ashland is a diversified business entity with global operations dating back before the 1920s, including various divisions, subsidiaries and affiliates, including entities acquired through various corporate acquisitions. Ashland has also divested a number of businesses in the 35 years since the RCRA Identification Number requirements became law. The request that Ashland provide all RCRA Identification Numbers issued to Ashland seeks information far beyond that is needed to determine: (A) the identification, nature, and quantity of materials which have been or are generated, treated, stored, or disposed of at a vessel or facility or transported to a vessel or

facility; (B) the nature or extent of a release or threatened release of a hazardous substance or pollutant or contaminant at or from a vessel or facility; and (C) information relating to the ability of a person to pay for or to perform a cleanup.

Notwithstanding the foregoing, and without any waiver of its objections Ashland states that it complies with all federal, state and local permit and/or registration requirements for the transport and/or disposal of materials.

Documents relating to APC and AOC are no longer within Ashland's possession, custody, or control. Upon information and belief if they still exist, such records would be in the possession of Marathon Oil Company.

9. Does the Respondent's company business have, or has it ever had, a permit(s) under the hazardous waste laws of the State? If so, provide a copy(ies) of the permit(s).

Response:

In addition to the General Objections set forth above, Ashland objects to Question No. 9 on the basis that the question is overbroad in scope. In addition to the General Objections set forth above, Ashland objects to Question No. 8 on the basis that the question is overbroad in scope, unauthorized by law, and unduly burdensome. Ashland is a diversified business entity with global operations dating back before the 1920s, including various divisions, subsidiaries and affiliates, including entities acquired through various corporate acquisitions. Ashland has also divested a number of businesses in the 35 years since the RCRA Identification Number requirements became law. The request that Ashland provide all RCRA Identification Numbers issued to Ashland seeks information far beyond that is needed to determine: (A) the identification, nature, and quantity of materials which have been or are generated, treated, stored, or disposed of at a vessel or facility or transported to a vessel or facility; (B) the nature or extent of a release or threatened release of a hazardous substance or pollutant or contaminant at or from a vessel or facility; and (C) information relating to the ability of a person to pay for or to perform a cleanup.

Notwithstanding the foregoing, and without any waiver of its objections Ashland states that it complies with all federal, state and local permit and/or registration requirements for the transport and/or disposal of materials.

Documents relating to APC and AOC are no longer within Ashland's possession, custody, or control. Upon information and belief if they still exist, such records would be in the possession of Marathon Oil Company.

10. Does the Respondent's company business have an EPA Identification Number, or an identification number supplied by the State? If so, supply any such identification number(s).

Response:

See Ashland's response to Question No. 8.

11. Identify all federal, state, and local offices and agencies to which the Respondent has sent or filed hazardous substance or hazardous waste information and state the years during which such information was sent or filed.

Response:

In addition to the General Objections set forth above, Ashland objects to Question No. 11 on the basis that the question is overbroad in scope, unauthorized by law, and unduly burdensome. Ashland is a diversified business entity with global operations dating back before the 1920s, including various divisions, subsidiaries and affiliates, including entities acquired through various corporate acquisitions. The request that Ashland provide all RCRA Identification Numbers issued to Ashland seeks information far beyond that is needed to determine: (A) the identification, nature, and quantity of materials which have been or are generated, treated, stored, or disposed of at a vessel or facility or transported to a vessel or facility; (B) the nature or extent of a release or threatened release of a hazardous substance or pollutant or contaminant at or from a vessel or facility; and (C) information relating to the ability of a person to pay for or to perform a cleanup.

Notwithstanding the foregoing, and without any waiver of its objections Ashland states that it complies with all federal, state and local permit and/or registration requirements for the transport and/or disposal of materials.

Documents relating to APC and AOC are no longer within Ashland's possession, custody, or control. Upon information and belief if they still exist, such records would be in the possession of Marathon Oil Company.

12. Provide copies of all documents created or kept by the Respondent related to the nature, quantify, or source of materials taken to the Site

Response:

See ASH00025 to ASH00082 for lists provided to Ashland by the Site allegedly identifying information regarding material sent to the Site.

13. If barges were placed or disposed at the Site, provide the following information:

    a. Where they were placed or disposed, and

    b. Their condition when placed or disposed.

Response:

Ashland does not have any information responsive to this request other than that contained in ASH00025 to ASH00082.

14. Identify other individuals and entities that the Respondent has reason to believe may have taken or sent materials to the Site. Of these individuals and entities, specify which were observed by the Respondent at the Site and indicate when those observations were made. Provide all of the information known by the Respondent regarding the customers of these entities or individuals.

Response:

Ashland objects to the term "observe" as ambiguous. Ashland does not have any information responsive to this request other than that contained in ASH00025 to ASH00082.

In replying to this RFI, Ashland has not, and shall not be deemed to have admitted any liability or responsibility with respect to the Site, the subject matter of the RFI or any other matter. Ashland also reserves the right to supplement its response to this RFI.[1]

If you have any questions concerning any response herein, please contact me.

Sincerely,

R. L. Wil

Richmond L. Williams

Enclosures

[1] In particular, to the extent evidence comes to light of any relations between the Site, APD and/or AOC, virtually all materials received or produced by APC and/or AOC fall under CERCLA's petroleum exclusion.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

DEC 0 9 2002

VIA FEDERAL EXPRESS: 8220 0515 8452
SSIC Remediation, L.L.C.
c/o Atty. Michael A. Chernekoff
Jones Walker
201 St. Charles Avenue, 50th Floor
New Orleans, LA 70170-5100

VIA FAX & CERTIFIED MAIL-RETURN RECEIPT REQUESTED: 7000 5020 0022 2560 7543
Mr. Louis Smaihall
Owner/President
SBA Shipyards, Inc.
P.O. Box 1386
Jennings, LA 70546

Re: Order and Agreement ("Agreement") for Interim Measures/Removal Action ("IM/RA") of Hazardous/Principal Threat Wastes at SBA Shipyards, Inc., Jennings, LA, EPA ID No. LAD008434185 ("SBA") pursuant to Section 3008(h) of the Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. § 6928(h). Docket No. RCRA-6-2002-0908.

Dear Messrs. Chernekoff and Smaihall:

The U.S. Environmental Protection Agency, Region 6 ("EPA") has identified elevated levels of certain contaminants in waste, soil, subsoil, and ground water media at SBA. This contamination resulted from historic clean-out operations at SBA conducted within barges and ships for or on behalf of members of SSIC Remediation, L.L.C. ("SSIC") and others. The clean-out residues were placed in tanks, two (2) impoundments and a land farm.

Samples were obtained from the area at SBA identified hereinafter as the SBA South Operable Unit ("SBA-SOU"), including samples of soil and subsoil media, and of tank and impoundment contents. The SBA-SOU shall be defined as all SBA property generally south and west of the line identified as "Lease Line of Property by Others" on the attached Statement of Work ("SOW"), Figure 1: Facility Plot Plan. The SBA-SOU soil and subsoil media samples contained concentrations of anthracene, chrysene, fluoranthene, phenanthrene, methylene chloride, and chromium exceeding the EPA Region 6 Media Specific Screening Levels.[1] Certain of the SBA-SOU tank and impoundment samples exceeded the Toxicity Characteristic Regulatory Limits for benzene and vinyl chloride. Most of the contamination of interest for the IM/RA described in the attached SOW exists in and around the areas noted in SOW Figure 1 as oil pit, oily material tanks, partially buried barge.

Ground water samples were obtained from the area at SBA identified hereinafter as the SBA Ground Water Operable Unit ("SBA-GWOU"). The SBA-GWOU, at a minimum, follows the areal extent of the SBA-SOU and may incorporate additional subsurface lateral extent as a function of ground water flow and contamination patterns The SBA-GWOU ground water samples contained non-aqueous phase liquids and concentrations of benzene exceeding the maximum contaminant level ("MCL") for drinking water.

[1]The EPA Region 6 Media Specific Screening Levels are available on the world wide web at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

The elevated contaminant levels in the SBA-SOU soil and subsoil and in the SBA-GWOU ground water constitute a release of hazardous constituents to the environment. In accordance with Section 3008(h) of RCRA 42, U.S.C. 6928(h), EPA has the authority to issue an Order to require cleanup actions where the Agency has made a determination that there is a release of hazardous constituents into the environment from an interim status facility. SBA should have had interim status or a permit to store characteristic hazardous wastes in impoundments and operate a land farm. EPA believes that the presence of hazardous constituents in the environment at SBA presents a threat to human health and the environment. Consequently, cleanup actions at SBA are necessary to limit exposure for humans or organisms to these hazardous constituents.

EPA has reviewed the attached SOW, submitted by SSIC, and finds it acceptable for an IM/RA. SBA agrees to implement an IM/RA on the SBA-SOU to meet visual removal levels as outlined in the SOW, with SSIC project management assistance. Implementing activities described in the SOW will remove the hazardous/principle threat wastes and allow future long term remedial work at SBA to proceed safely. EPA intends to pursue future long-term remedial work at the SBA facility, under a subsequent agreement to be finalized within three (3) years.

I. Requirements, Studies, and Documents Incorporated by Reference

SBA shall implement all parts of the SOW which is incorporated by reference into this Agreement and SSIC shall fund and assist in management of that implementation. The parties recognize that the SOW requires studies and/or work plans be submitted to EPA for comment and/or approval. All such studies and work plans, upon approval by EPA, are deemed incorporated by reference into both this Agreement and the incorporated SOW. Any changes to the scope of the SOW, whether an increase or a decrease in scope of the SOW, must be in writing and must be agreed to by the Project Managers designated below.

II. Project Managers

EPA has designated a Project Manager to provide oversight for the activities in this Agreement. The EPA Project Manager shall be EPA's designated representative for remedial activities at the Facility and shall be:

Mr. Gene Keepper, CHMM
RCRA Project Manager
U.S. Environmental Protection Agency
Region 6 (6EN-HX)
1445 Ross Avenue, Suite 900
Dallas, Texas 75202-2733
Phone: 214-665-2280
Fax: 214-665-7264
E-mail: Keepper.Gene@epa.gov

SBA and SSIC have designated a joint Project Manager to oversee implementation of the SOW. The SBA/SSIC designated Project Manager is:

Mr. Michael E. Pisani, P.E.
Michael Pisani & Associates, Inc.
1100 Poydras Street
Energy Center
New Orleans, LA 70163
Phone: 504-582-2468
Fax: 504-582-2470
E-mail: m.pisani@ix.netcom.com

ASH00002

Unless otherwise provided herein, all communications between SBA/SSIC and the EPA, and all documents, reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Agreement shall be directed through the Project Managers.

SBA/SSIC shall notify the EPA in writing of the name, title, and qualifications of any contractors or subcontractors and their personnel to be used in carrying out the terms of this Agreement within five (5) calendar days of the effective date of this Agreement, or within five (5) calendar days prior to such contract or subcontract.

III. Effective Date of this Agreement

SBA shall state its agreement to perform the activities in this Agreement, jointly with SSIC, by the signing by a responsible official on the signature line for SBA found below. SSIC shall state its agreement to perform the activities in this Agreement, jointly with SBA, by the signing by a responsible official on the signature line for SSIC found below. The original of this Agreement with the signatures for SBA and SSIC shall be returned to EPA within 45 calendar days of receipt of this Agreement. This Agreement is effective upon the signatures for both SBA and SSIC and the filing by EPA of the original Agreement containing the signatures for EPA, SBA, and SSIC with the Regional Hearing Clerk, U.S. Environmental Protection Agency, Region 6.

IV. Work

EPA acknowledges that the work performed at this facility in accordance with this Agreement would achieve programmatic parity, avoid duplication and delay, and achieve substantive consistency between remedial programs as described in the NPL/RCRA deferral policy (54 FR 41000).

V. Contribution Protection

The parties agree, and by entering into this Agreement EPA intends, that SBA, its President, Mr. Louis Smaihall, SSIC and the members of SSIC are entitled, as of the effective date of this Agreement, to protection from contribution actions or claims for the actions or matters addressed by Section 3008(h) of RCRA and memorialized in this Agreement.

VI. Oversight Costs

If SBA and SSIC fulfill all obligations of this Agreement, EPA agrees it will not assert any claim against SBA or SSIC (or its members) for costs associated with oversight of work by EPA's RCRA Project Manager performed by SBA and/or SSIC under this Agreement.

If either SBA chooses not to implement or SSIC chooses not to fund or assist in managing work pursuant to the SOW, EPA will evaluate its options (including issuance of Unilateral Orders under Sections 3008(h) or 7003 of RCRA or CERCLA remedial action) against all parties to ensure that concerns are properly addressed. If problems or unforeseen circumstances arise, the EPA will assist as needed to achieve a timely and effective remediation. EPA appreciates your cooperation in this matter. If you have any questions concerning the work required by this Agreement, please do not hesitate to contact Mr. Gene Keepper by any method previously indicated.

Sincerely yours,

Pamela Phillips, Acting

Samuel Coleman, P.E.
Director
Compliance Assurance and
Enforcement Division

ASH00004

IT IS AGREED:

Mr. Louis Smaihall
Owner/President, SBA Shipyards, Inc.

Date: 11/21/02

ASH00005

Gene Keepper, RCRA Project Manager
Phone Number: 214-665-2280

IT IS AGREED:

Arlen B. Cenac Jr.

Signature/Printed Name, Manager
SSIC Remediation, L.L.C.

Date: 11/14/02

Enclosure

cc: Lourdes Iturralde, LDEQ
Keith Horn, LDEQ-RSD
Michael Pisani, Michael Pisani and Associates

ASH00006

CERTIFICATE OF SERVICE

I hereby certify that on the 10 th day of December 2002, the original of the Subject Letter Agreement was hand delivered to and filed by the Regional Hearing Clerk, U.S. Environmental Protection Agency, Region 6, Wells Fargo Bank Tower, 1445 Ross Avenue, Dallas, Texas 75202-2733, and that on the 12 th day of December 2002, that true and correct copies of the Letter Agreement were sent to the following by the method indicated below:

VIA CERTIFIED MAIL - RETURN RECEIPT REQUESTED: 7000 0520 0022 2560 7567

Mr. Louis Smaihall
Owner/President
SBA Shipyards, Inc.
P.O. Box 1386
Jennings, LA 70546

VIA CERTIFIED MAIL - RETURN RECEIPT REQUESTED: 7000 0520 0022 2560 7550

SSIC Remediation, L.L.C.
c/o Atty. Michael A. Chernekoff
Jones Walker
201 St. Charles Avenue, 50th Floor
New Orleans, LA 70170-5100

Gene Keepper
Signature 12Dec2002

ASH00007

August 15, 2001
Statement of Work
Accelerated Cleanup Action

SBA Shipyards, Inc.
Jennings, Louisiana

Summary

This Statement of Work (SOW) describes Interim Measures to be performed at the SBA Shipyards, Inc. ("SBA"), site near Jennings, Louisiana ("the Site"). The Interim Measures described herein address removal and offsite thermal destruction of oils and the solidification & stabilization of oily sludges. These materials pose a potential risk of fire, explosion or release to the environment. The objective of these Interim Measures is to reduce that threat through the removal of these materials.

This SOW describes the framework and major work components by which the objective of these Interim Measures will be met. Detailed descriptions of key work components and/or tasks (e.g., treatability testing, water disposal, selection of offsite disposal facilities for solidified sludges, etc.) will be presented to the U.S. EPA in brief work plans for review and approval. For each key task, a brief work plan will be submitted at least ten working days prior to commencement of that task.

SBA will transport pumpable oils and oily materials from the site to an offsite permitted thermal destruction facility. Oils, waxes and oily sludges that are not acceptable to the thermal destruction facility will be solidified and stabilized in-situ, and the solidified/stabilized material will be transported offsite to a RCRA Subtitle D permitted landfill.

This SOW does not address ground water, nor does it address any impacted media stemming from site activities not directly associated with barge-cleaning activities conducted by SBA.

Site Description

The Site is located on the west bank of the Mermentau River at the end of Louisiana Highway 3166 (Castex Landing Road), approximately four miles southeast of Jennings, Louisiana and approximately two miles southwest of Mermentau, Louisiana. The SBA facility was used to construct, repair and clean barges and other marine vessels since the mid-1960s. The approximately 98-acre site is a predominantly open area on the banks of the Mermentau River.

Beginning in 1993, the portion of the site used to construct and repair barges and other marine vessels was leased to another firm; that firm has since acquired the leased portion of the SBA facility. The portion of the site used by SBA for "gas-free" barge cleaning activities is the portion of the site located south of the barge slip. A site map, showing major site features, is attached as Figure 1.

A mixture of oils and water resulting from past barge cleaning activities is contained in a number of aboveground steel tanks and vessels in the portion of the facility used for barge cleaning activities. A partially buried barge contains a number of compartments filled or partially filled with oil, water and small amounts of solids and/or sludges. In addition, an open earthen pit on the site contains oil, waxes, solids and/or sludges and water.

Scope of Work

This SOW describes only Interim Measures associated with the stabilization and/or removal of pumpable oils and oily sludges that were generated by SBA as part of barge-cleaning activities at the facility.

This SOW defines the scope of planned Interim Measures for addressing oils and oily sludges generated by barge-cleaning activities conducted by SBA, at its barge-cleaning facility near Jennings, Louisiana. The objective of the Interim Measures described herein is to minimize the potential for release of contaminants from the site by reducing the mobility, toxicity and volume of contaminated media.

The volume, mobility and toxicity of contaminated media will be reduced through the removal from the site of pumpable oils and oily material generated by previous barge cleaning activities conducted at the site. These pumpable oils and oily materials will be incinerated or otherwise thermally destroyed at an offsite, permitted facility.

The volume, toxicity and mobility of contaminants at the site will also be reduced through the stabilization/solidification and offsite disposal (as non-hazardous solid waste) of waxes and sludges generated by barge cleaning activities at the site. In the unlikely event that any material is not accepted for offsite disposal by a RCRA Subtitle D facility, it will be stabilized/solidified, consolidated onsite, and capped with a low-permeability polymer liner until appropriate measures for management and final disposition of the consolidated material can be determined.

A work plan with a definite schedule for final disposition of consolidated onsite materials will be submitted to U.S. EPA within 45 days after completion of the consolidation activities.

The scope of this SOW is performance of the Interim Measures described herein. The scope of the Interim Measures is limited to addressing pumpable oil mixtures, waxes, sludges and sludge-like soils generated by barge cleaning activities at the site.

Management of ground water and/or contaminated soils which may be associated with SBA's barge cleaning activities will be addressed in the future, after the Interim Measures described herein have been completed and evaluated with respect to Preliminary Remedial Goals for the site.

Preliminary Remedial Goals

Preliminary Remedial Goals (PRGs) for the Interim Measures described herein are the removal of oils and oily materials contained in tanks and land based units (i.e., earthen pits and landfarm) at the Site, the SBA South Operable Unit (SBA-SOU). These fluids and sludges contain hazardous constituents in concentrations great enough which present a potential risk of fire, explosion or release to the environment. The removal of these materials from the site will eliminate or mitigate against any such risk. Under these criteria, the site-specific PRGs are:

- Complete removal of oils and oily Principal Threat/Hazardous Wastes contained in all Site tanks or containers followed by decontamination. Removal & decontamination, will be followed by exhumation, if necessary, demolition, and cutting & scrapping of all tanks or containers. Details of decontamination, exhumation, if necessary, demolition, and cutting & scrapping of all tanks are presented in a section below.

- Removal of Principal Threat/Hazardous Wastes from the Site land based units (i.e., impoundments and landfarm) shall, at a minimum, be based upon visual observations of surface or subsurface staining and physical characteristics of the oily materials (i.e., viscosity, solids content and pumpability) not numerical concentration criteria for purposes of this Interim Measures Removal. Respondents may use as yet unidentified numerical PRGs for confirmatory sampling, once those PRGs are identified by respondents and agreed to by both EPA and Respondents. Removals will be performed on site Principal Threat/Hazardous Wastes in the earthen pit(s) and landfarm to a depth and laterally to where no visible staining is apparent or six inches below the interface between pit/landfarm sludges and underlying soils whichever is less but still at or above the water table. If the water table is encountered above the interface of pit sludges and underlying soils, removal shall occur only to the water table.

Guidelines for final disposition of removed materials are presented below:

- Offsite incineration of pumpable oil mixtures conforming to acceptance criteria of the incineration facility or facilities.

- Stabilization/solidification and offsite RCRA Subtitle D facility disposal of waxes/sludges and oil mixtures not conforming to acceptance criteria of the incineration facility or facilities.

- Stabilization/solidification and temporary onsite consolidation/containment of stabilized/solidified waxes/sludges and oil mixtures not conforming to acceptance criteria of the offsite RCRA Subtitle D facility or facilities. Ultimate disposition of the consolidated material will be determined through a focused feasibility study of appropriate management alternatives.

The Louisiana Risk Evaluation/Corrective Action Program (RECAP), promulgated June 20, 2000 at LAC 33:I.1307, *et seq.*, defines a tiered human health risk-based program for defining cleanup standards for contaminated sites, based on site-specific risk parameters, including current and future use of the site, site geometry, and site geology. The most current version of the Louisiana RECAP program or more stringent risk-based cleanup standards developed under RCRA, including ecological risk based standards, will be considered for any additional work at the site. That additional work may include the development of long-term remedial goals for the site which are protective of human health and the environment, including, but not limited to, the adjacent jurisdictional wetlands and Mermentau River aquifer or other as-yet unidentified ecological receptors.

Inventory of Oil Mixture

The site contains approximately one million gallons of a relatively solids-free oil mixture. This oil mixture consists of roughly 48% hydrocarbons, 50% water and 2% solids in a tightly bound and viscous, black oily emulsion. This material is contained in the partially buried barge/tank and other onsite tanks.

The estimated inventory of oil mixture is summarized in Table 1 (attached). The material inventory estimates provided in Table 1 are based on vessel dimension measurements, visual observations, and tank content measurements made by Michael Pisani & Associates, Inc. on May 3, 2001. The total estimated inventory of pumpable oil mixture is approximately 1.16 million gallons (approximately 27,650 barrels) in the six major vessels and 14 compartments of the partially buried barge/tank located at the site.

The waxes and sludges in the earthen pit may not meet the acceptance criteria of the offsite disposal facility (i.e., viscosity and solids content) and are not included in the inventory of pumpable oil mixture described herein. Based on data presented in the facility's *RCRA Facility Investigation Work Plan* (Woodward-

Clyde Consultants, Inc., October 1996), the estimated inventory of oily sludges in the earthen pit is approximately 1.5 million to 1.7 million gallons.

The volume of oil mixture transported offsite will be measured and recorded by the incineration facility or other facilities accepting the material from SBA. In addition, the transporter hauling the material will measure the size of each truckload transported from the site for billing purposes.

Removal and Offsite Disposal of Oil Mixture

Pumpable oil mixture will be:

1. Heated (if necessary to reduce viscosity);
2. Filtered through cartridge filters to remove large solids;
3. Loaded into tanker trucks (or onto barges, if feasible) for transport;
4. Manifested for transport, measured (by volume); then
5. Transported offsite for weighing and thermal destruction.

Rhodia, Inc. (Baton Rouge, Louisiana and Houston, Texas) accepted the oil mixture for conducting a trial burn. Based on the successful trial burn results, Rhodia has commenced incineration of the oil mixture on a full-scale basis. In addition, discussions with Safety-Kleen Corporation (Deer Park, Texas) are also in progress for Safety-Kleen to incinerate the oil mixture as well.

Scrapping Empty Vessels

As vessels at the Site (including the partially buried barge/tank) are emptied during the execution of these Interim Measures, the empty vessels will be exhumed, if needed, decontaminated, then cut up and sold as scrap metal or sold for reuse. Prior to scrapping or reuse, each empty vessel will be cleaned to remove residual oil and solids. Water and/or steam blowdown that accumulates in the vessel during cleaning will be collected in remaining tankage and managed with other site water, as described in a subsequent section of this SOW.

As the inventory of oily material is reduced, U.S. EPA will be notified of planned empty vessel scrapping activities at least ten working days prior to commencing the work. Decontamination and scrapping procedures will be described in a brief work plan submittal for EPA review and approval.

Stabilization of Waxes and Sludges

The waxes and sludges are contained in the open, onsite earthen pit. The earthen pit also contains water and may also contain small amounts of relatively solids-free oil mixture. The water in the earthen pit will be pumped out of the pit and disposed as discussed in the following section regarding water disposal.

Pumpable, relatively solids-free oil mixture from the earthen pit will be pumped to an onsite tank for management with the oil mixture sent offsite for incineration.

The remaining waxes, oily sludges, oily soils and any impacted soils found above the water table, will then be solidified/ stabilized *in situ* in the earthen pit using fly ash, portland cement and site soils. Optimal dosages and types of stabilization reagent will be determined by bench-scale treatability testing prior to full-scale implementation. The treatability study will include analyses of untreated materials, as well as laboratory analyses of treated materials.
Based on the bench-scale treatability testing results, optimal dosages and types of stabilization reagents will be added to the earthen pit, and the material will be mixed in-situ with a dragline or hydraulic excavator. Pending the results of the treatability study, soil may augment the solidification/stabilization process by increasing the solids content of the oily material, reducing the quantity of required binding reagent and improving the effectiveness of the pozzolanic binding reaction.

Soils will be excavated to a depth of approximately 18 inches from the approximately 100-foot by 200-foot former landfarm unit area west of the oil pit. The extent of excavation will be determined in the field by visual observations of soil staining. The landfarm soils will be solidified/stabilized with the contents of the oil pit.

The stabilized material will then be allowed to harden or cure over a period of several weeks. Precipitation or other accumulated water in the pit will be pumped off and managed as described in the Water Management section of this SOW.

After the stabilizing reactions are complete, the stabilized materials will be sampled and profiled for offsite disposal as non-hazardous, industrial solid waste. Upon acceptance by a permitted solid waste disposal facility, the stabilized material will be excavated and transported offsite for final disposal as solid waste or use as landfill cover material at a permitted RCRA Subtitle D landfill facility. For materials accepted by the RCRA Subtitle D facility, a Land Disposal Regulations (LDR) certification that the stabilized/solidified material does not exhibit hazardous waste characteristics will be prepared and signed by SBA's designated representative.

In the unlikely event that no RCRA Subtitle D facility will accept the stabilized/solidified material, appropriate alternative treatment or offsite disposal measures will be evaluated, depending upon the disqualifying characteristic of the material. A work plan for development of a feasibility study for final disposition of consolidated materials will be submitted to U.S. EPA within 45 days after completion of consolidation activities.

Brief work plans describing the treatability testing and waste testing procedures will be prepared and submitted to U.S. EPA for review at least ten working days prior to commencing the work.

Water Management

Water will be stored in either the partially buried barge or onsite tanks. At the appropriate time and depending upon water volumes and characteristics, the water will either be treated and discharged pursuant to Louisiana Department of Environmental Quality (LDEQ) authorization or transported offsite for treatment and disposal at a permitted commercial facility.

A brief work plan describing water management procedures will be prepared and submitted to U.S. EPA for review at least ten working days prior to commencing the work.

Interim Closure Measures

The emptied earthen pit will be backfilled using uncontaminated onsite soils. Nutrients (e.g., nitrogen-containing agricultural fertilizers) may also be added prior to backfilling and regrading excavated areas (e.g., the former pits). The nutrients will be entrained into the soil using a bulldozer and/or tractor-pulled disks, which will also aerate and mix the soil prior to compaction and regrading. Details of the backfilling operation and nutrient addition will be produced in a separate workplan for approval by the EPA.

Based on waste profile sampling and analytical results from samples of stabilized and solidified materials, any material not accepted by the offsite disposal facilities will be stabilized/solidified and consolidated onsite. Consolidated materials will be confined to as small an areal footprint as is practicable, depending upon material volume, design of adequate top and side slopes for surface drainage and slope stability, and other pertinent design factors. As a current concept, the material will be consolidated aboveground, compacted and capped with a low-permeability polymer liner to minimize surface water infiltration for interim staging/storage while decisions for ultimate disposal are made. Excavated areas will be backfilled and compacted. The surfaces of backfilled areas will be graded for proper surface drainage and seeded with native grasses.

A brief work plan describing interim closure measures will be prepared and submitted to U.S. EPA for review at least ten working days prior to commencing the work.

Site Health and Safety

Site activities will be performed in accordance with procedures described in the site-specific health and safety plan developed as Appendix A of *Interim Site Stabilization Measures Work Plan* (Woodward-Clyde Consultants, Inc., October 1996). During stabilization/solidification activities conducted at the site, fenceline ambient air monitoring of airborne particulates will be performed to monitor potential human health affects to site workers and offsite personnel. Air monitoring limits shall be established protective of off-site personnel. Work modification or stoppage shall be implemented as needed to maintain off-site protectiveness.

Reporting

As the Interim Measures described herein are implemented, monthly progress reports will be submitted to U.S. EPA, documenting the implementation of the Interim Measures described herein, including the removal and offsite disposal of oil mixture. Each monthly progress report will describe (for the reporting period) activities performed, upcoming planned tasks, problems encountered and measures taken to correct those problems. Air monitoring limits shall be established protective of off-site personnel. Work modification or stoppage shall be implemented as needed to maintain off-site protectiveness.

As described previously herein, brief work plans will be submitted for U.S. EPA review at least ten working days prior to commencement of the following key tasks:

- Scrapping of Empty Vessels
- Stabilization of Waxes and Sludges
- Water Management
- Interim Closure Measures
- Area of Contamination Consolidation (if required).

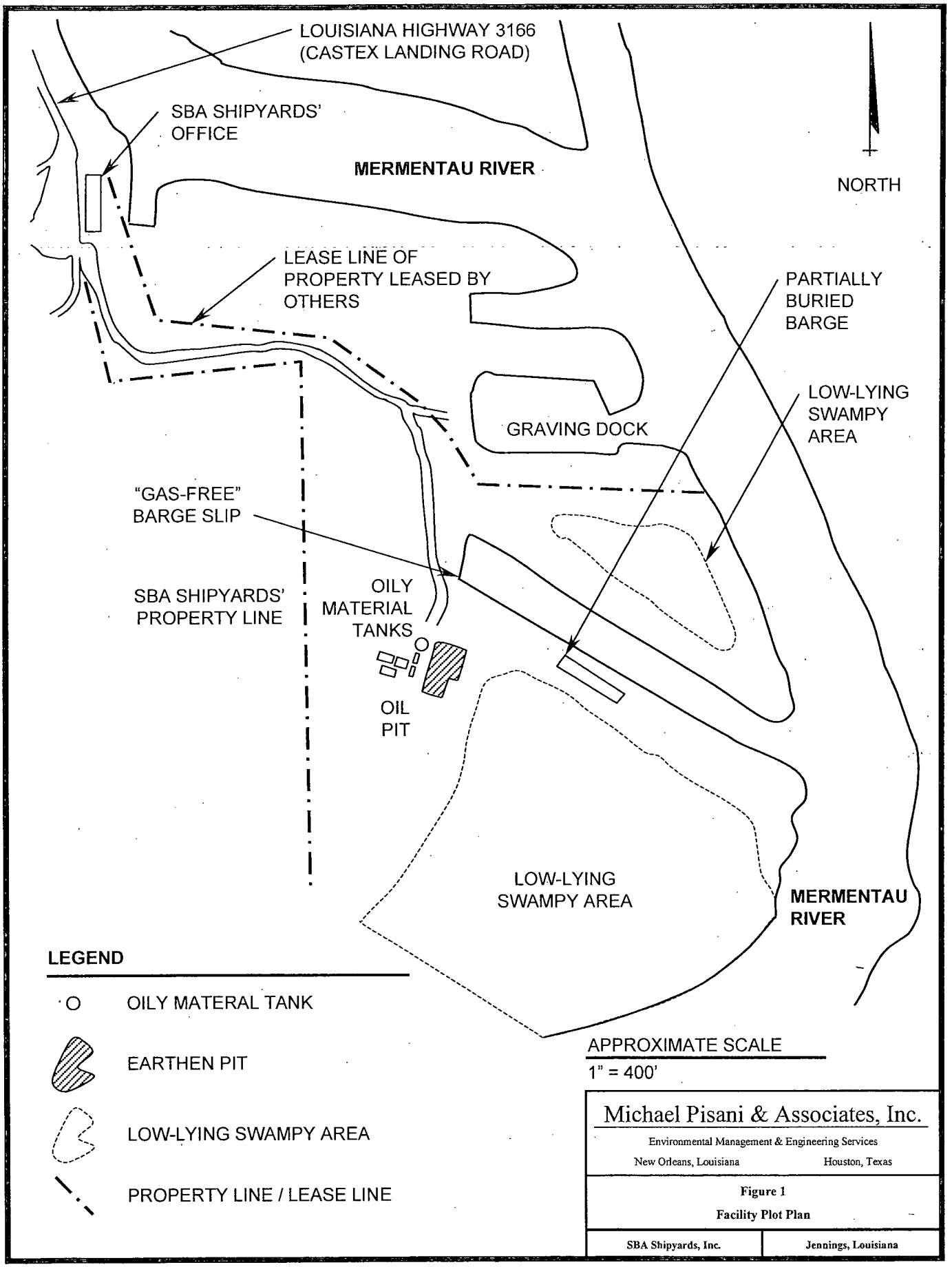
LOUISIANA HIGHWAY 3166
(CASTEX LANDING ROAD)
SBA SHIPYARDS'
OFFICE
MERMENTAU RIVER
NORTH
LEASE LINE OF
PROPERTY LEASED BY
OTHERS
PARTIALLY
BURIED
BARGE
LOW-LYING
SWAMPY
AREA
GRAVING DOCK
"GAS-FREE"
BARGE SLIP
SBA SHIPYARDS'
PROPERTY LINE
OILY
MATERIAL
TANKS
OIL
PIT
LOW-LYING
SWAMPY AREA
MERMENTAU
RIVER
LEGEND
O OILY MATERAL TANK
EARTHEN PIT
LOW-LYING SWAMPY AREA
PROPERTY LINE / LEASE LINE
APPROXIMATE SCALE
1" = 400'
Michael Pisani & Associates, Inc.
Environmental Management & Engineering Services
New Orleans, Louisiana
Houston, Texas
Figure 1
Facility Plot Plan
SBA Shipyards, Inc.
Jennings, Louisiana

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Table 1

Pumpable Oily Material Inventory
May 3, 2001

SBA Shipyards, Inc.
Jennings, Louisiana

Tank or Impoundment	Estimated Maximum Capacity (gallons)	Estimated Maximum Capacity (barrels)	Observed Depth of Contents[b]	Estimated Material Inventory (gal)	Estimated Material Inventory (barrels)	Estimated Material Inventory (pounds)[a]	Visual Observations[b]
Selected Tanks							
Tank AT-1	17,042	406	52"	9,814	234	81,898	Horizontal cylindrical tank (mostly water).
Tank AT-2	17,042	406	77"	13,703	326	114,352	Horizontal cylindrical tank (2" sludge layer on bottc
Tank WT-1	106,837	2,544	85"	88,561	2,109	739,044	Very thick oil.
Tank WT-2	111,482	2,654	70"	77,553	1,847	647,183	24" sludge layer on bottom.
Tank WT-3	109,159	2,599	93"	93,998	2,238	784,416	36" sludge layer on bottom.
Tank ST-1	420,000[c]	10,000	9' - 10"[d]	99,474	2,368	830,111	38' high vertical cylindrical tank.
Total	781,562 gallons	18,609 barrels		**383,104 gallons**	9,122 barrels	3,197,003 pounds	
Former Barge (OT-4)							
Bow Rake Tank	26,853	639	56"	20,862	497	174,093	Very thick oil (2" sludge layer on bottom).
Deck Tank S	Not Measured	Unknown	Empty	Negligible	Negligible	Negligible	Dry, some rust scale.
Deck Tank P	Not Measured	Unknown	6"	Negligible	Negligible	Negligible	Oil, no visible water.
Compartment 1S	75,054	1,787	118"	65,659	1,563	547,924	
Compartment 1P	75,054	1,787	119"	64,874	1,545	541,374	
Compartment 2S	71,808	1,710	78"	58,344	1,389	486,881	
Compartment 2P	71,808	1,710	78"	58,344	1,389	486,881	
Compartment 3S	100,279	2,388	111"	84,325	2,008	703,692	
Compartment 3P	100,279	2,388	111"	84,325	2,008	703,692	
Compartment 4S	100,279	2,388	114"	86,604	2,062	722,710	
Compartment 4P	100,279	2,388	114"	86,604	2,062	722,710	
Compartment 5S	86,908	2,069	115"	75,689	1,802	631,625	
Compartment 5P	86,908	2,069	114"	75,057	1,787	626,351	
Aft Trim Tank	18,388	438	112"	17,447	415	145,595	
Total	913,897 gallons	21,759 barrels		**778,134 gallons**	18,527 barrels	6,493,528 pounds	
Grand Total	1,695,459 gallons	40,368 barrels		**1,161,238 gallons**	27,649 barrels	9,690,531 pounds	

NOTES:

(a) Based on bulk density of 8.345 pounds/gallon.
(b) MP&A site visit (May 3, 2001).
(c) According to Mr. Louis Smaihall, the total volume is 10,000 barrels (420,000 gallons).
(d) Measurement read from permanently installed float gauge on tank.

From: Mcdonald.Scott@epamail.epa.gov [mailto:Mcdonald.Scott@epamail.epa.gov]
Sent: Monday, March 13, 2006 6:06 PM
To: Chernekoff, Mike
Cc: Keepper.Gene@epamail.epa.gov
Subject: Re: FW: LDEQ AI 1478 ::: EPA Approval for SBA Shipyards IM/RA Completion Report with Cost Addendum

Mike -
Sorry about the delayed response...I don't want to speak for the RCRA Program (Gene)...but yes - my understanding is that Gene's letter does confirm & acknowledge that the Order/Agreement is officially closed. It is also my understanding that SSIC member companies will not be called upon or required to make further contributions towards the clean-up. I believe that Gene's letter confirms & acknowledges that SSIC has satisfied the terms of the Order/Agreement. However, there was one company (former member of SSIC - forgot name?) that quit contributing

and participating in the clean-up effort after several months. EPA did send that company a formal request to continue contributions towards any future remediation.

The RCRA Program has my file for SBA Shipyards...and all response letters from non-SSIC companies (former customers of SBA) were sent to the RCRA Program. Thus, I do not know where things stand regarding status of participation by non-SSIC companies?
Scott

"Chernekoff, Mike" <mchernekoff@joneswalker.com>
To: Scott McDonald/R6/USEPA/US@EPA
cc:
03/13/2006 02:55 PM
Subject: FW: LDEQ AI 1478 ::: EPA Approval for SBA Shipyards IM/RA Completion Report with Cost Addendum

Scott,

See my email below. Would you please confirm my understanding of Gene's letter?

Thanks,

Mike

-----Original Message-----
From: Chernekoff, Mike
Sent: Tuesday, February 28, 2006 10:54 AM
To: 'Keepper.Gene@epamail.epa.gov'; 'Mcdonald.Scott@epamail.epa.gov'
Cc: Chernekoff, Mike

Subject: RE: LDEQ AI 1478 ::: EPA Approval for SBA Shipyards IM/RA Completion Report with Cost Addendum

Thanks you. This is good news!

I assume this is the formal acknowledgment that the Order/Agreement is official "closed." Please confirm

Also, I would like to talk to you about what else EPA has in mind for the site. For any additional work, I assume that you will be contacting companies other than those SSIC members protected by the Order/Agreement.

Mike

-----Original Message-----
From: Keepper.Gene@epamail.epa.gov [mailto:Keepper.Gene@epamail.epa.gov]

Sent: Monday, February 27, 2006 1:49 PM
To: Chernekoff, Mike
Cc: Robert Leslie; Keith Horn; Keepper.Gene@epamail.epa.gov; Belk.Ellen@epamail.epa.gov; Mcdonald.Scott@epamail.epa.gov; Lourdes Iturralde
Subject: LDEQ AI 1478 ::: EPA Approval for SBA Shipyards IM/RA Completion Report with Cost Addendum

Mike/Rob:
Here is the Completion Report approval letter. Given that this transmission contains a direct facsimilie of the Signed original, I do not intend to follow-on with a hardcopy. I need to complete close-out of the Order and this segment of the SBA remediation will have all paperwork completed before moving on to the next phase. Not the way I'd necessarily planned it, however given the fates changing my planing via my ankle, it'll have to do!

(See attached file: SBA Comp Rep App.pdf)

Sincerely,
Gene Keepper, CHMM, P.G.
RCRA Project Manager (6EN-HX)
TSP Engineering Forum Member
>>
Gene Keepper, CHMM, P.G. Phone: 214-665-2280
Soil Chemist Fax: 214-665-7264

Records and Information Management

Policy Statement

Ashland Inc., its commercial units and majority-owned or controlled subsidiaries ("Ashland") will maintain a system to ensure the proper maintenance and disposition of its documents and records.

Records will be retained only as long as required for (a) business operations or archival purposes, or (b) to satisfy legal or regulatory obligations, as reflected in the Records Management Master Schedule, after which time the Records will be promptly disposed of.

Overview

Information embodied in records is a vital and strategic asset. Ashland is the owner of all records created, received, and/or maintained by its employees in connection with business operations and other activities.

Records management is an important, necessary, and prudent business practice as well as a critical legal and regulatory compliance matter. A strong, effective, and viable Records Management Program can achieve many purposes, including the following:

- Protect Ashland's valuable records and information, whether in paper, electronic, or other forms or media;
- Enable Ashland to comply with applicable laws and regulations, including those related to records retention, data privacy, and other legal and regulatory requirements;
- Enable Ashland to respond to informational requests from courts, lawyers, regulators, shareholders, and others; and
- Improve employee productivity and shared learning through efficient information management.

Each employee must be familiar with and adhere to Ashland's Records Management Policy.

Benefits of Records Management

Ashland derives benefit from utilizing a records management program. These benefits help to:

- Meet applicable legal and regulatory standards;
- Eliminate outdated and useless records;
- Minimize the cost of records retention;
- Increase efficiency of records retrieval; and
- Optimize the use of electronic and physical storage space.

Viability of Storage Method

Owners of Records must ensure their method of storage is usable for the entire Required Retention Period. Long term viability is an issue for all storage methods (e.g., fading of ink on hardcopy documents, brittleness of microfilm, CD rot, etc.); however this issue is of particular concern for electronic storage. Owners of Records stored electronically must ensure that the Records remain in a readable condition throughout the Required Retention Period and that technologies required to access the Records are maintained or the Records are converted to a method of storage that can be accessed.

Records Hold Obligations

A hold order is issued at the direction of the Law Department with litigation, governmental investigation or proceeding, or audit has begun or is reasonably likely to begin. All records destruction is suspended insofar as it relates to either the subject matter of such litigation or governmental investigation or proceeding and/or the relevant records involved. All corporate records related to that matter must be maintained until further notice from the Law Department.

Employees are strictly prohibited from destroying, altering, or otherwise concealing records that may be subject to a hold order.

The Law Department will notify you when a hold order is in effect and will provide and special instructions regarding maintenance or transfer of relevant records. The hold order is applicable to all records in existence at the time the hold order is placed and to any subsequently created or received records relevant to the subject matter of the hold order.

When the litigation, governmental proceeding, or audit has concluded, all identified persons will be notified that the hold order has been withdrawn. All records that were the subject of the hold order will immediately revert to their normal retention periods. If the official retention time has expired, the records should be destroyed promptly.

Please be aware that the unauthorized or premature destruction of corporate records that are relevant to a hold order can subject Ashland and individual employee(s) to severe legal and disciplinary consequences, including criminal charges for obstruction of justice, civil penalties or spoliation of evidence, and termination of employment.

Maintenance and Application of the Records Management Master Schedule

The Records Management Master Schedule identifies Ashland Corporate Records and their corresponding retention periods. All employees should become familiar with the Records Management Master Schedule. The Records Management Master Schedule will be updated in response to business related appeals or changed to laws or regulations.

It is the responsibility of employees to notify Records Management of additional record types that need to be added to the schedule and to remove types that are no longer relevant and should not be on the retention schedule. Records Management will also periodically survey employees to identify updates, additions, or deletions needed to the Records Management Master Schedule.

The retention periods shown on the Records Management Master Schedule for regulated records are generally based on United States federal laws. However, state, local, and other requirements for record keeping may be more stringent and must be followed.

Employees will adhere to the Records Management Master Schedule for all Records unless the Record is on hold. Specifically:

- Records will be retained for at least the period required by international, federal, state, and local laws governing the management of that type of Records;
- Records Management must approve any addition, deletion or revision to the Records Management Master Schedule ;
- Once a Record is finalized, drafts may not be retained;
- Copies of Records may not be retained longer than the longest Required Retention Period for the original Record; and
- When a matter or project contains Records subject to more than one Required Retention Period, the longest Required Retention Period must be used for that matter or project. The Required Retention Period is measured from when the Record ceases to be active or current.

All Records not specifically categorized on the Records Management Master Schedule are considered "Miscellaneous Records" and may be kept for any period up to but not exceeding two years at the discretion of management.

Third Party Storage

Ashland's Company Records are stored and maintained by Iron Mountain. Whenever possible, Records should be sent to Iron Mountain for storage and disposition. If it is not possible to use Iron Mountain, it is the responsibility of the Owners of Records to ensure that the third party provider complies with all of Ashland's Records Management policies and procedures, including but not limited to:

- Retaining Records in a facility offering security against unauthorized access;
- Protecting Records against natural or man-made disasters (e.g., earthquake, fire, etc.);
- Handling Records confidentially;
- Providing adequate access and prompt, efficient handling of Records;
- Disposing of Records in accordance with the Records Management Master Schedule; and
- Placing Records "on hold" when and as directed by Ashland.

Disposal of Records

Employees will use disposal methods appropriate to the information contained in the Record once its Required Retention Period has expired.

Employees will shred Records containing information covered by privacy laws or information that is considered confidential.

Definitions

Owners of Records – *Owners of Records are responsible for maintaining the* records to meet operating, legal and/or fiscal requirements. The owners must ensure their method of storage is usable for the entire Required Retention Period.

Record – Recorded information created within or received by Ashland that has been or is used in the accomplishment of work, and/or maintained as evidence, and information by Ashland in compliance with legal or regulatory obligations, or in the course of business. This information can either be an original or a copy, and may be in the form of a paper document, an electronic file on a hard drive or shared drive, or various other media types such as tape recordings, CDs, DVDs, or videos.

Records Management Master Schedule – A listing that identifies the types of Records held by Ashland and specifies the Required Retention Period for each Record.

Required Retention Period – The length of time that a Record must be retained for fiscal, historical, legal, operational, or other purposes before being destroyed unless destruction is suspended by Ashland's Law Department.

Responsible Party

Ashland's general counsel is responsible for implementation of, and amendments to, this policy.

Scope

This policy applies to Ashland.

Effective Date

18 February 2015

References

The following reference documents apply to this policy:

Document Number	Document Title	Document Type
AI-POL-001.000	Establishment and Application of Ashland Policies	Policy
AI-POL-006.000	Information Governance	Policy
AI-POL-007.004	Reporting Obligations	Policy
E-5090	Index of Records in Storage	Form
REF-005537	Records Management Master Schedule	Reference
REF-005538	Records Management Master Schedule Most Recent Updates	Reference
FirstHand Link	Records & Document Management FirstHand Site	Reference
FirstHand Link	Global Standards of Business Conduct (GSBC)	Reference
REF-000004	Glossary	Reference

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATE(S)*	VESSEL NUMBER	PREVIOUS 3 CARGOES	WORK ORDER NO.	ADDITIONAL INFO.
Ashland Oil Company	1/16/87	T-1701	Crude Oil	995	Arrived Pre-Cleaned
	3/30/87	HBL-3011	Coal Tar	999	Arrived Pre-Cleaned
	1/26/88	AO-331	Cumene	1029	Arrived Pre-Cleaned
	6/8/88	AOC-216	Asphalt Slops	1045	Removed approx. 400 bbls of hard asphalt; solids disposed off-site
	9/1/88	HTCO-S-2014	Crude Oil	1086	25,000 bbl barge; bottoms contained crude oil; solids disposed off-site
	5/22/89	AO-36	Coal Tar (3)	1118	removed approx. 280 bbls of coal tar; solids disposed off-site
	8/3/89	AO-97	Coke Oven Tar (3)	1126	Heavy asphalt bottoms and B.S. & W. removed; solids disposed off-site
	1/28/92	AOC-216	Black Oil	1227	removed 88 bbls of black oil and slop oil; solids disposed off-site
	8/31/92	AOC-253	Asphalt	1255	removed approx. 1172 bbls sludge, 6-oil and asphalt; solids disposed off-site
	1/25/93	AO-33	Coal Tar, Black Oil	1265	Removed approx. 1460 bbls of 6-oil and asphalt; solids disposed off-site
	3/16/93	AO-5233	No. 6 Oil, Asphalt	1270	Approx. 1652.5 bbls hard asphalt & 6-oil removed; solids disposed off-site

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATE(S)*	VESSEL NUMBER	PREVIOUS 3 CARGOES	WORK ORDER NO.	ADDITIONAL INFO.
	7/9/94	AOC 236	Coal Tar (3x)	1319	Approx. 485 bbls of coal tar and asphalt removed. Disposed at BFI.
Ashland Oil Company	9/1/94	AO-38	Coal tar, asphalt, No. 6 Oil	1320	Approx. 2126 bbls of coal tar, 6-oil, and asphalt removed. Disposed at BFI.
	11/8/94	AO-36	Black Oil	1332	approx. 2180 bbls hard asphalt and coal tar removed. Disposed at BFI
	1/17/95	AO-27	Recycled Crude, Vacuum Tower Bottoms, Charge Stock	1333	Approx. 2221 bbls of hard asphalt and coal tar. Disposed at BFI.
	6/1/95	AO-B244	Asphalt, coal tar, No. 6 Oil	1344	Hard asphalt, coal tar, and 6-oil removed. Disposed at BFI.
	6/3/95	AO-35		1355	Removed approx. 360 bbls of hard/soft products. Disposed at BFI.
	7/8/95	AOC-253	Asphalt, Coal Tar	1361	Removed approx. 720 bbls of asphalt and coal tar (hard). Disposed at BFI.
	9/2/95	HBL-3009		1366	Arrived Pre-Cleaned

TOTAL BARGES CLEANED FOR THIS CUSTOMER = 15

* - Based on date from Marine Chemist's Gas Free Certificate

SBA SHIPYARDS, INC. PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS					
COMPANY	DATE(S)*	VESSEL NUMBER	PREVIOUS 3 CARGOES	WORK ORDER NO.	ADDITIONAL INFO.
Higman Towing Company	10/2/88	HTCO-S-2013	crude oil	1092	25,000 bbl barge; bottoms contained crude oil
	12/3/88	HTCO-2026	crude oil	1102	25,000 bbl barge; bottoms contained crude oil
	6/5/89	HTCO-2027	crude oil	1125	25,000 bbl barge; contained crude oil bottoms
	9/1/89	HTCO-2028	crude oil	1132	25,000 bbl barge; contained crude oil bottoms
	11/5/89	HTCO-S-2512	crude oil	1139	25,000 bbl barge; contained crude oil bottoms
	3/2/90	HTCO-S-2020	crude oil	1156	25,000 bbl barge; contained crude oil bottoms
	3/3/91	HTCO-DXE-2302	crude oil	1202	25,000 bbl barge; contained crude oil bottoms
	4/8/91	HTCO-1802	Crude Oil (3x)	1206	Arrived Pre-Cleaned
	12/16/92	HTCO-2021	Crude Oil	1263	10 cargo tanks approx. 86 bbl heavy product and paraffin wax
	6/24/93	HTCO-2024	Crude Oil (3x)	1282	10 cargo tanks approx. 86 bbl heavy product and paraffin wax
	1/11/94	HTCO-2514	No. 6 Oil	1301	Approx. 90 bbls of B.S. & W. crude oil bottoms removed
	4/28/94	HTCO-2513	Crude Oil (3x)	1308	6-oil mix with sand to oil pit

SBA SHIPYARDS, INC. PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS					
COMPANY	**DATE(S)***	**VESSEL NUMBER**	**PREVIOUS 3 CARGOES**	**WORK ORDER NO.**	**ADDITIONAL INFO.**
Higman Towing Company	7/6/94	HTCO-3001	Kerosene, Crude Oil, Crude Oil	1322	Crude oil bottoms removed
	7/6/95	HTCO-S-2014	crude oil	1362	Crude oil bottoms removed
	12/1/95	HTCO-S-2011	crude oil	1374	Crude oil bottoms removed
	3/1/95	HTCO-3001	Crude Oil (x3)	1346	crude oil and B.S. & W. removed

TOTAL BARGES CLEANED FOR THIS CUSTOMER = 15

* - Based on date from Marine Chemist's Gas Free Certificate

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATE(S)*	VESSEL NUMBER	PREVIOUS 3 CARGOES	WORK ORDER NO.	ADDITIONAL INFO.
Transerve Marine	11/6/84	Ryan	Caustic Soda	1007	Arrived Pre-Cleaned
	1/20/85	ATC 586	Caustic Soda, Tallow	955	removed 55 gal of waste oil; also cleaned 7 main cargo tanks of tallow and caustic soda
	3/21/85	I-50	Lube Oil	887	Removed lube oil
		I-50		878	Arrived Pre-Cleaned
	11/13/85	Ryan	Caustic Soda	920	Removed heavy deposits of caustic
	7/21/86	Hooker Burlington	Caustic Soda	975	Arrived Pre-Cleaned
	11/17/86	I-50	Caustic Soda	978	Removed caustic
	4/21/87	I-50	Corn Oil, Caustic Soda	1003	Removed caustic and corn oil
	12/17/86	I-50	Caustic soda	989	Removed caustic and silt
	5/26/87	Ryan	Caustic Soda	1007	Arrived Pre-Cleaned
	1/11/88	I-50	Caustic Oil/Caustic	881	Removed caustic
	3/27/89	TMI-91	Caustic Soda (3)	1119	Cleaned out caustic, mud and rust
	8/9/89	TMI-96	UREA-Ammonium Nitrate	1130	Arrived Pre-Cleaned
	12/4/89	I-50	Soybean & Corn Oil/Caustic Soda	1145	Removed caustic and corn oil
	12/13/89	I-50	Corn Oil, Soybean Oil	1145	Approx. 200 bbl of caustic soda and corn oil removed
	4/12/90	I-50	Caustic Soda	1161	cleaned caustic barge for hotwork and personnel

TOTAL BARGES CLEANED FOR THIS CUSTOMER = 11

* - Based on date from Marine Chemist's Gas Free Certificate

SBA SHIPYARDS, INC. PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS					
COMPANY	**DATE(S)***	**VESSEL NUMBER**	**PREVIOUS 3 CARGOES**	**WORK ORDER NO.**	**ADDITIONAL INFO.**
Allied Towing	8/21/85	Kelly	Asphalt, Bunker C	911	Removed asphalt and bunker C.
	4/21/86	Kelly	Asphalt	964	Arrived Pre-Cleaned
	8/1/86	I-150	Caustic Soda	978	Arrived Pre-Cleaned

TOTAL BARGES CLEANED FOR THIS CUSTOMER = 1

* - Based on date from Marine Chemist's Gas Free Certificate

SBA SHIPYARDS, INC. PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS					
COMPANY	DATE(S)*	VESSEL NUMBER	PREVIOUS 3 CARGOES	WORK ORDER NO.	ADDITIONAL INFO.
Sergeant Marine	3/13/95	MC Asphalt 201	Asphalt (x3)	1342	Removed approx. 156 bbls of asphalt, rust and scale.

TOTAL BARGES CLEANED FOR THIS CUSTOMER = 1

* - Based on date from Marine Chemist's Gas Free Certificate

SBA SHIPYARDS, INC. PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS					
COMPANY	DATE(S)*	VESSEL NUMBER	PREVIOUS 3 CARGOES	WORK ORDER NO.	ADDITIONAL INFO.
Marine Operators	11/15/85	MOP 190	Diesel Oil	921	Arrived Pre-Cleaned

TOTAL BARGES CLEANED FOR THIS CUSTOMER = 0

* - Based on date from Marine Chemist's Gas Free Certificate

SBA SHIPYARDS, INC. PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS					
COMPANY	**DATE(S)***	**VESSEL NUMBER**	**PREVIOUS 3 CARGOES**	**WORK ORDER NO.**	**ADDITIONAL INFO**
Hollywood Marine	10/17/87	Hollywood 2802	Crude Oil, No. 6 Oil	1021	Cleaned barge
	11/17/87	Hollywood 1401	Bunker Oil (No. 6)	1013	Cleaned barge
	3/8/90	Hollywood 2511	Suspected Light Crude Oil	1153	Gas free and clean 14 barge tanks
	5-8/90	Hollywood 2513	Black Oil, Crude Oil	1166	20,000 bbl barge; 55 bbls contain rust, scale, and crude oil

TOTAL BARGES CLEANED FOR THIS CUSTOMER = 4

* - Based on date from Marine Chemist's Gas Free Certificate

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATE(S)*	VESSEL NUMBER	PREVIOUS 3 CARGOES	WORK ORDER NO.	ADDITIONAL INFO.
Ingram Barge Lines	1/9/87	I-B 7027	Crude	994	Arrived Pre-Cleaned
	3/5/88	TB-911		1035	Stripped cargo tanks approx. 15 bbls.
	3/5/88	WTB-806		1035	Stripped cargo tanks approx. 15 bbls.
	3/16/88	George	#6 Oil/Coal Tar	1033	10 cargo tanks; bucketed out approx. 20 bbls black & carbon oils
	3/30/88	Hollywood 2102	Slop #6 Oil	1037	cleaned out slop oil; #6 oil & B.S. & W.
	5/2/88	Hollywood 2523	Slop Oil	1041	Approx. 260 bbls of sludge, wax and B.S. & W.
	10/10/88	IB-1302	Coal Tar (3)	1088	Approx. 600 bbls creosote & coal tar removed.
	1/25/89	IB-1308	Heavy Aromatics/Gasoline	1110	approx. 60 bbls of product removed
	8/5/90	I-B 908	Wastewaver	1178	Barge already gas free. Just pumped water from tank barge
	10/5/90	I-B 1926	Ethonol	1185	Approx. 18 bbls of product removed/striped tanks with vacuum truck
	11/8/93	IB-2710	Crude Oil	1296	Arrived Pre-Cleaned

TOTAL BARGES CLEANED FOR THIS CUSTOMER = 9

* - Based on date from Marine Chemist's Gas Free Certificate

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATE(S)*	VESSEL NUMBER	PREVIOUS 3 CARGOES	WORK ORDER NO.	ADDITIONAL INFO.
Sabine Towing	3/11/82	ST-123	Crude Oil	653	No additional information
	4/8/85	STCO-228	NO. 6 oil	892	21,000 bbl barge; 60 bbls 6-oil & rust removed
	6/1/86	STCO-219	crude oil	968	60 bbls crude & wax removed out of 10 cargo tanks
	6/2/86	STCO-224	No. 6 oil; crude oil	969	20 bbls of 6-oil and crude oil removed
	5/23/88	STCO-230	No. 6 Fuel	1044	23,000 bbl barge; removed approx. 60 bbls boiler fuel bunker c.
	9/22/88	STCO-221	Condensate/Crude Oil	1090	picked up approx. 25 bbls of condensate and crude oil
	10/6/88	STCO-220	Crude Oil (3)	1091	Picked up approx. 30 bbls of crude oil and paraffin
	1/7/89	TBC-2	Water and heavy tank bottoms	1109	Pumped to pits approx. 6,000 bbls of water and heavy tank bottoms
	4/1/89	STCO-227	crude oil	963	45 bbls crude oil removed

TOTAL BARGES CLEANED FOR THIS CUSTOMER = 9

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SBA SHIPYARDS, INC. PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS					
COMPANY	**DATE(S)***	**VESSEL NUMBER**	**PREVIOUS 3 CARGOES**	**WORK ORDER NO.**	**ADDITIONAL INFO.**
Canal Barge Company	5/17/89	CBC-137	Coal Tar, Creosote	1121	128 BBLS creosote and coal tar removed from wings and voids
	10/25/89	CBC-231	Coal Tar (3)	1138	1804 bbls approx. coal tar, waste oil and B.S. & W. from tank bottoms

TOTAL BARGES CLEANED FOR THIS CUSTOMER = 2

* - Based on date from Marine Chemist's Gas Free Certificate

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATES	VESSEL #	PREVIOUS 3 CARGOES	WORK ORDER #	ADDITIONAL INFORMATION
Edwards Transportation Co.	4/69	Michigan	Suspect crude oil	3534	Gas free 8500 barrel tank barge
	4/24/70	Cape Henry	Suspect crude oil	3653	Gas free 9000 barrel tank barge
	7/27/70	Naptha	Suspect crude oil	3688	Gas free 26,000 barrel tank barge
	11/30/70	Brazos	Suspect crude oil	3727	Hot water wash tanks to remove wax and file
	1/24/77	Trinity	Crude Oil	5426	Clean and gas free all cargo tanks
	1/5/77	Hiran King	Crude Oil	5429	Clean and gas free all cargo tanks
	2/5/77	Casper	Crude Oil	6446	Clean and gas free all cargo tanks
	2/10/77	Cherokee	Crude Oil	5450	Clean and gas free all cargo tanks
	2/28/77	Cape May	Crude Oil	6488	Clean and gas free all cargo tanks
	3/1/77	Cape Cod	Crude Oil	5480	Clean and gas free all cargo tanks
	3/16/77	Betty	Crude Oil	6512	Clean and gas free all cargo tanks
	5/26/77	Cape May	Crude Oil	6617	Clean and gas free all cargo tanks
	4/21/78	Apache	Crude Oil	6989	Clean and gas free all cargo tanks
	4/27/78	Commanche	Crude Oil	6998	Clean and gas free all cargo tanks
	7/19/78	Choctaw	Crude Oil	7493	Clean and gas free all cargo tanks
	7/31/78	CapeCod	Crude Oil	8108	Clean and gas free all cargo tanks
	8/2/78	Cape May	Crude Oil	8113	Clean and gas free all cargo tanks
	11/14/78	Trinity	Crude Oil	1115	Clean and gas free all cargo tanks
	3/1/79	Jimmie T	Crude Oil	8263	Clean and gas free all cargo tanks

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATES	VESSEL #	PREVIOUS 3 CARGOES	WORK ORDER #	ADDITIONAL INFORMATION
Cape May Barge Co.	4/13/70	Cape May	Suspect crude oil	3652	Gas free 9000 barrel tank barge
	4/23/70	Cape May	Suspect crude oil	3652	Gas free 9000 barrel barge

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATES	VESSEL #	PREVIOUS 3 CARGOES	WORK ORDER #	ADDITIONAL INFORMATION
Delta Barge Co.	2/4/70	Jimmie T	Suspect crude oil	3622	Gas freeing; heavy wax bottoms
	2/23/70	Trinity	Suspect crude oil	3626	Gas free 8500 barrel tank barge
	12/10/73	Betty	Suspect crude oil	3972	Gas free 8500 barrel tank barge
	12/31/73	Wyatt	Suspect crude oil	3976	Gas free 6000 barrel tank barge
	3/6/74	L.J.Cobb	Suspect crude oil	3983	Gas free tank barge

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATES	VESSEL #	PREVIOUS 3 CARGOES	WORK ORDER #	ADDITIONAL INFORMATION
Choctaw Barge Co.	4/24/70	Choctaw	Suspect crude oil	3646	Gas free 9000 barrel tank barge

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATES	VESSEL #	PREVIOUS 3 CARGOES	WORK ORDER #	ADDITIONAL INFORMATION
Navadad Barge Co.	9/4/70	Navadad	Suspect crude oil	3698	Gas free 8400 barrel tank barge

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATES	VESSEL #	PREVIOUS 3 CARGOES	WORK ORDER #	ADDITIONAL INFORMATION
Neuces Barge Co.	9/30/70	Neuces	Suspect crude oil	3708	Gas free 8500 barrel tank barge
	3/15/71	Neuces	Suspect crude oil	3763	Gas free 10,400 barrel tank barge

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATES	VESSEL #	PREVIOUS 3 CARGOES	WORK ORDER #	ADDITIONAL INFORMATION
Apache Barge Co.	10/13/70	Apache	Suspect crude oil	3706	Gas free 8500 barrel tank barge

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATES	VESSEL #	PREVIOUS 3 CARGOES	WORK ORDER #	ADDITIONAL INFORMATION
Comanche Barge Co.	10/21/70	Comanche	Suspect crude oil	3707	Gas free 8500 barrel tank barge

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATES	VESSEL #	PREVIOUS 3 CARGOES	WORK ORDER #	ADDITIONAL INFORMATION
Key West Barge Co.	10/31/70	Key West	Suspect crude oil	3723	Gas free 8500 barrel tank barge

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATES	VESSEL #	PREVIOUS 3 CARGOES	WORK ORDER #	ADDITIONAL INFORMATION
Jack Barge Co.	1/22/71	Jack	Suspect crude oil	3746	Gas free 12,200 barrel tank barge

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATES	VESSEL #	PREVIOUS 3 CARGOES	WORK ORDER #	ADDITIONAL INFORMATION
EV Barge Co.	1/31/71	EV	Suspect crude oil	3748	Gas free 13,000 barrel tank barge

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATES	VESSEL #	PREVIOUS 3 CARGOES	WORK ORDER #	ADDITIONAL INFORMATION
Frio Barge Co.	3/16/71	Frio	Suspect crude oil	3764	Gas free 10,400 barrel tank barge

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATES	VESSEL #	PREVIOUS 3 CARGOES	WORK ORDER #	ADDITIONAL INFORMATION
Cape Henry Barge Co.	4/30/71	Cape Henry	Suspect crude oil	3779	Gas free 9,000 barrels heavy wax bottoms

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATES	VESSEL #	PREVIOUS 3 CARGOES	WORK ORDER #	ADDITIONAL INFORMATION
Largo Barge Co.	5/19/71	Key Largo	Suspect crude oil	3787	Gas free 9,000 barrel tank barge

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATES	VESSEL #	PREVIOUS 3 CARGOES	WORK ORDER #	ADDITIONAL INFORMATION
Cape Charles Barge Co.	6/25/71	Cape Chas.	Suspect crude oil	3792	Gas free 9,000 barrel tank barge

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATES	VESSEL #	PREVIOUS 3 CARGOES	WORK ORDER #	ADDITIONAL INFORMATION
Salvador Barge Co.	10/28/71	Salvador	Suspect crude oil	3830	Gas free 8,400 barrel tank barge

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATES	VESSEL #	PREVIOUS 3 CARGOES	WORK ORDER #	ADDITIONAL INFORMATION
Huron Barge Co.	10/28/71	Huron	Suspect crude oil	3831	Gas free 8,500 barrel tank barge

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATES	VESSEL #	PREVIOUS 3 CARGOES	WORK ORDER #	ADDITIONAL INFORMATION
Onterio Barge Co.	11/4/71	Onterio	Suspect crude oil	3833	Gas free 8,500 barrel tank barge

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATES	VESSEL #	PREVIOUS 3 CARGOES	WORK ORDER #	ADDITIONAL INFORMATION
Windward Transportation Co.	1/12/72	Choctaw	Suspect crude oil	3846	Gas free 9,000 barrel tank barge
	1/18/72	Cherokee	Suspect crude oil	3847	Gas free 9,000 barrel tank barge

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATES	VESSEL #	PREVIOUS 3 CARGOES	WORK ORDER #	ADDITIONAL INFORMATION
Panama Barge Co.	3/15/72 - 3/24/72	Panama	Suspect crude oil	3865 and 3865-A	Gas free 17,000 barrel tank barge
	1/29/74	Panama	Suspect crude oil	3979	Gas free 17,000 barrel tank barge

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATES	VESSEL #	PREVIOUS 3 CARGOES	WORK ORDER #	ADDITIONAL INFORMATION
Suez Barge Co.	4/17/72	Suez	Suspect crude oil	3866	Gas free 17,000 barrel tank barge

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATES	VESSEL #	PREVIOUS 3 CARGOES	WORK ORDER #	ADDITIONAL INFORMATION
Christine Towing Co.	4/17/72	Betty	Suspect crude oil	3877	Gas free 9,500 barrel tank barge

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATES	VESSEL #	PREVIOUS 3 CARGOES	WORK ORDER #	ADDITIONAL INFORMATION
Key Sterling Transportation	11/8/73	George E	Suspect crude oil	3969	Gas free 8,400 barrel box barge

SBA SHIPYARDS, INC. PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS					
COMPANY	DATE(S)*	VESSEL NUMBER	PREVIOUS 3 CARGOES	WORK ORDER NO.	ADDITIONAL INFO.
Martin Gas Marine	12/13/91	MGM 307	Gas - Oil	1224	Approx. 18 bbls of rust and scale

TOTAL BARGES CLEANED FOR THIS CUSTOMER = 1

* - Based on date from Marine Chemist's Gas Free Certificate

SBA SHIPYARDS, INC. PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS					
COMPANY	DATE(S)*	VESSEL NUMBER	PREVIOUS 3 CARGOES	WORK ORDER NO.	ADDITIONAL INFO.
L & L Oil Company	10/5/94	Linda Jo	Diesel (3x)	1336	Approx. 28 bbls. rust

TOTAL BARGES CLEANED FOR THIS CUSTOMER = 1

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SBA SHIPYARDS, INC. PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS					
COMPANY	DATE(S)*	VESSEL NUMBER	PREVIOUS 3 CARGOES	WORK ORDER NO.	ADDITIONAL INFO.
Tallen Marine	8/29/90	T-13	Diesel (3x)	1179	Washed tanks of diesel oil
	9/19/90	Glenn C	Diesel (3x)	1182	Washed tanks of diesel oil
	6/19/91	T-13	Diesel Fuel (3x)	1216	Fuel oil
	6/26/92	T-13	Diesel	1254	Fuel oil
	8/3/93	Rig Runner	Diesel, Water	1285	Fuel oil approx. 1 3/4 bbls.
	9/23/93	T-13	Diesel Fuel (3x)	1289	6 cargo tanks fuel oil & rust
	10/31/94	T-13	Diesel (3x)	1339	Stripped tanks of fuel residue
	6/9/95	Glenn C	Diesel Fuel (3x)	1358	Cleaned 4 main cargo tanks, sludge

TOTAL BARGES CLEANED FOR THIS CUSTOMER = 8

* - Based on date from Marine Chemist's Gas Free Certificate

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATE(S)*	VESSEL NUMBER	PREVIOUS 3 CARGOES	WORK ORDER NO.	ADDITIONAL INFO.
Leevac/Domar Marine	5/16/85	Domar 7001	Crude Oil	895	Cleaned barge
	8/21 - 9/13/85	Domar 115	Crude Oil, Black Oil	909	Arrived Pre-cleaned
	1/2/86	Domar 118	Black Oil, #6 Oil	1011	Cleaned black oil and B.S. & W.
	10/26 - 12/7/87	Domar 6501	#6 Oil	1017	500 bbls of paraffin, oil & scale removed
	2/14/88	Domar 115	Gasoline, Diesel	1030	Cleaned out gas/diesel in 14 tanks
	7/6/88	Domar 6501	#6 Oil	1076	Arrived Pre-Cleaned

TOTAL BARGES CLEANED FOR THIS CUSTOMER = 4

* - Based on date from Marine Chemist's Gas Free Certificate

SBA SHIPYARDS, INC. PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS					
COMPANY	**DATE(S)***	**VESSEL NUMBER**	**PREVIOUS 3 CARGOES**	**WORK ORDER NO.**	**ADDITIONAL INFO.**
Sun Oil Co. Sun Marine Terminal P. O. Box 758 Nederland, TX 77627	5/3/77	JAR-5	Suspect asphalt	170	Wash out/clean vessell for change of cargo
	4/8/80	Lou II	Suspect asphalt	490	Gas free and clean tank barge
	11/12/80	Lou III	Suspect asphalt	557	Gas free and clean tank barge
	7/27/81	Lou IV	Suspect asphalt	588	Gas free and clean 26,000 barrel barge
	12/19/88 - 1/13/89	Lou IV	Asphalt	1104	Clean and gas free tank barge

TOTAL BARGES CLEANED FOR THIS CUSTOMER = 5

* - Based on date from Marine Chemist's Gas Free Certificate

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATE(S)*	VESSEL NUMBER	PREVIOUS 3 CARGOES	WORK ORDER NO.	ADDITIONAL INFO.
Cenac Towing Company	11/14/88	CTCO 181	#6 Oil, Crude, Condensate	1094	Last cargo 6-oil and crude oil
	5/8/89	CTCO-186	Condensate	1122	Stripped condensate from tanks
	9/11/90	CTCO 153	Crude Oil	1180	Cleaned out paraffin off of crude oil
	6/4/90	CTCO-188-12	Condensate	1170	Stripped barge of condensate approx. 3 bbls vacuum trucks
	6/4/90	CTCO-189-12	Condensate	1170	Stripped barge of condensate approx. 3 bbls vacuum trucks
	2/1/91	CTCO-175	Crude Oil	1198	Removed approx. 60 bbls paraffin wax off of crude oil
	10/18/91	CTCO 3022	Crude Oil (3x)	1222	Arrived Pre-Cleaned
	12/31/91	CTCO 154	Slop Oil	1226	Approx. 16 bbls of 6-oil and crude oil removed.
	2/7/92	CTCO 2312	Crude Oil (3x)	1230	Arrived Pre-Cleaned
	4/5/92	CTCO-2304		1240	Arrived Pre-Cleaned
	5/3/92	CTCO-175		1248	Removed 10 bbls scale, wax & grease
	2/20/92	HBL 3006	Asphalt (3x)	1234	Approx. 12' in #1 port and #2 STB of asphalt
	4/13/92	CTCO 2303	Crude Oil (3x)	1246	Arrived Pre-Cleaned
	5/22/92	CTCO 2311	Crude Oil	1252	Arrived Pre-Cleaned
	8/17/92	CTCO 3005	Asphalt, #6	1256	removed approx. 38 bbls 6-oil, asphalt & rust

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATE(S)*	VESSEL NUMBER	PREVIOUS 3 CARGOES	WORK ORDER NO.	ADDITIONAL INFO.
Cenac Towing Company	9/4/92	CTCO 1183	Lube Oil	1257	removed approx. 18 bbls B. S. & W.
	11/6/92	CTCO 3003	No. 6 Oil	1262	Removed approx. 168 bbls of rust, asphalt & 6-oil
	1/5/93	CTCO 186-20	Crude Oil	1271	Arrived Pre-Cleaned
	4/5/93	CTCO 3007	Heavy Slop Oil	1273	Removed approx. 201 bbls of asphalt, rust & 6-oil
	6/11/93	CTCO 181	Waste Water, Drill Water	1280	removed approx. 12 bbls of scale and B.S. & W.
	7/15/93	CTCO 196-20	Crude Distillate	1283	Cleaned for change of cargo crude oil to diesel
	7/28/93	CTCO 196-26	Waste Water	1284	Cleaned sewage barge rust and scale
	10/15/93	CTCO 3025	Carbon Oil	1292	Cleaned approx. 130 bbls carbon oil
	9/6/93	CTCO-2001	Light Oil	1290	Stripped vessel for change of cargo light oil
	9/6/93	CTCO 2002	Light Oil	1290	Stripped vessel for change of cargo light oil
	10/5/93	CTOC-197	Light Oil	1293	Stripped light products from barge approx. 76 bbls.
	10/5/93	CTCO-198	Light Oil	1293	Stripped light products from barge approx. 76 bbls.
	10/27/93	CTCO 179	Crude Oil	1295	Arrived Pre-Cleaned

SBA SHIPYARDS, INC. PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS					
COMPANY	DATE(S)*	VESSEL NUMBER	PREVIOUS 3 CARGOES	WORK ORDER NO.	ADDITIONAL INFO.
Cenac Towing Company	3/7/94	CTCO 2003	Condensate, Crude Oil, No. 6 Oil	2736	No additional information
	10/4/94	CTCO-198	Crude oil, No. 6 oil	1338	Removed approx. 24 bbls heavy crude and 6-oil
	5/17/94	CTCO 3025	Carbon Oil, Crude Oil	1311	Removed approx. 48 bbls product
	8/9/94	CTCO 3022	Crude Oil	1326	Approx. 25 bbls of product removed
	8/16/94	CTCO 1524b	Crude Oil	1327	Removed approx. 30 bbls product
	8/24/94	CTCO 1526b	Crude Oil 3x	1328	Heavy crude oil approx. 90 bbls removed
	5/1/95	CTCO 230	Crude Oil (3x)	1353	Removed approx. 38 bbls heavy grease and paraffin wax
	7/9/95	CTCO-194	Crude Oil	1363	Removed approx. 46 bbls of rust, paraffin & crude oil
	8/1/95	CTCO-195	Crude Oil	1364	Removed approx. 51 bbls rust, crude oil, and paraffin wax
	11/2/95	CTCO-3024		1371	Arrived Pre-Cleaned
	11/3/95	CTCO-3025		1373	Arrived Pre-Cleaned
	2/3/96	CTCO-194-25	Carbon Oil	1378	Removed approx. 35 bbls of carbon oil and slurry oil

TOTAL BARGES CLEANED FOR THIS CUSTOMER = 31

* - Based on date from Marine Chemist's Gas Free Certificate

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATE(S)	VESSEL NUMBER	PREVIOUS 3 CARGOES	WORK ORDER NO.	ADDITIONAL INFO.
Union Mechling	8/4/77	UMC-945	Asphalt	264	Clean and gas free
	11/7/77	UMC-946	Creosote	306	Clean and gas free
	2/18/78	UMC-910	p-Xylene	Not available	Clean and gas free
	4/7 - 10/78	UMC-933	Styrene	180	Clean and gas free
	5/15/78	UMC-2605	Vinyl acetate	189	Clean and gas free
	5/29/78	UMC-927	Carbon tetrachloride	191	Clean and gas free
	9/19 - 20/78	LCD-4930	Styrene	335	Clean and gas free
	5/21 & 30/79	UMC-916	Vinyl acetate	387	Clean and gas free
	6/13/79	UMC-932	Coal Tar	393	Clean and gas free
	7/18/79	UMC-911	Styrene	399	Clean and gas free
	10/3/79	4931	Styrene	442	Clean and gas free
	1/18/80	LCD-4630	Not available	477	Arrived clean; painted oil barge
	4/3/80	UMC-908	Styrene	Not available	clean and gas free
Dravo Mechling	3/19/80	UMC-4634	Black oil and Coal tar	491	Gas free and clean tank of heavy product
	3/25/80	UMC-4908	Black oil and Coal tar	492	Removed heavy product & coal tar
	10/24/80	UMC-905	Molasses	553	removed molasses
	12/4/80	UMC-950	Coal Tar	559	Gas free and clean tank of heavy product
	1/26/81	UMC-360	Creosote and Coal tar	564	clean and gas free of creosote and coal tar
	5/25/81	DM-904	Molasses	581	removed molasses

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATE(S)	VESSEL NUMBER	PREVIOUS 3 CARGOES	WORK ORDER NO.	ADDITIONAL INFO.
Dravo Mechling (cont'd.)	6/15/81	DM-927	Carbon tetrachloride	590	clean and gas free; drained cargo lines; removed heavy rust deposits
	7/29/81	DM-944	Suspect Coal tar	591	Gas free and clean double skin barge
	10/15/81	DM-947	Creosote and coal tar	626	Gas free and clean three main cargo tanks of creosote and coal tar bottoms
	11/6/81	DM-932	Suspect Coal tar	627	Gas free and clean 3 main cargo tanks
	11/25/81	DM-915	Gasoline	683	Arrived Pre-Cleaned
	12/2/81	DM-605	Not available	632	Cleaned heavy residue
	12/14/81	DM-904	Tallow	640	Clean and gas free tank barge
	1/4/82	DM-2601	Suspect Coal tar and asphalt	633	Clean and gas free tank barge; 15 drums of rust scale
	1/5/82	DM-927	carbon tetrachloride	644	Clean and gas free tank barge
	2/14/82	DM-953	coal tar and creosote	646	clean and gas free - coal tar and creosote
	4/30/82	DM-909	coal tar	655	clean and gas free - coal tar and other products
	5/27/82	DM-946	Suspect Coal tar, creosote	663	cleaning; mainly for hotwork
	7/20/82	DM-910	Suspect Coal tar	665	removed heavy products from double skin barge
	8/4/82	DM-944	Creosote, coal tar	669	removed coal tar and creosote
	8/11/82	DM-945	Coal tar, creosote	667	Clean and gas free coal tar and crosote products from main tanks

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATE(S)	VESSEL NUMBER	PREVIOUS 3 CARGOES	WORK ORDER NO.	ADDITIONAL INFO.
Dravo Mechling *(cont'd.)*	10/8/82	DM-947	Asphalt, Coal Tar	670	Gas free and clean cargo tanks
	10/21/82	DM-951	Suspect Asphalt	672	Gas free and clean cargo tanks
	11/11/82	DM-2609	Creosote, Asphalt, Coal Tar	674	Removed coal tar and creosote
	12/14/82	DM-932	Creosote & Asphalt	727	Removed 8 bbls of heavy product
	2/17/83	DM-2608	Coal tar	728	Cleaned coal tar residue from 6 tanks
	3/25/83	DM-952	Suspect Coal tar, asphalt	735	Removed heavy products from double skin barge
	5/4/83	DM-2607	Coal Tar and Creosote	738	Removed coal tar and creosote
	6/13/83	DM-604	Coal Tar and Oil	739	Removed heavy deposit of coal tar and oil
	9/1/83	PTC-502	Carbon Black	801	Arrived Pre-cleaned
	10/18/83	DM-949	Suspect Asphalt or No. 6 oil	748	Clean and gas free
	10/19/83	DM-932	Suspect Coal Tar, Creosote	802	Cleaned only to make repairs
	11/10/83	DM-945	Coal Tar	803	Removed coal tar residue
	1/12/84	DM-917	Carbon tetrachloride	811	Not available
	1/12/84	DM-918	Carbon tetrachloride	812	Not available
	1/31/84	DM-951	Suspect Asphalt	807	Shoveled product to buckets; removed buckets to deck boxes*
	4/3/84	DM-947	Suspect Coal Tar or Creosote	815	Gas free and clean heavy products

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATE(S)	VESSEL NUMBER	PREVIOUS 3 CARGOES	WORK ORDER NO.	ADDITIONAL INFO.
Dravo Mechling (cont'd.)	4/17/84	DM-925	Ethyl acrylate	823	Arrived Pre-Cleaned
	5/10/84	DM-948	Coal Tar and Cresote	817	Gas free and clean; creosote and coal tar
	5/22/84	DM-921	Acrylates	828	Arrived Pre-Cleaned
	6/4/84	DM-944	Coal tar, creosote	824-A	Gas free and clean; coal tar and creosote
	7/3/84	DM-901	Blended fuel	832	cleaned to carry naptha; was carrying blended fuel
	9/28/84	DM-903	Styrene	835	Removed solidified styrene
	11/21/84	GTC-5	Heavy oil products	846	Pumped heavy oil products from vessell
	12/7/84	DM-9731	Corn Oil/ syrup	877	Gas free and clean; corn syrup and water
	3/7/96	DM-953	Suspect Coal Tar or Creosote	882-A	Gas free and clean tanks; bucket and shovel heavy materials
	3/28/85	DM-905	Asphalt, Coal Tar, Creosote	886	Removed coal tar and creosote
	7/2/85	DM-952	Coal Tar, Creosote	901	Picked up heavy deposits of coal tar and creosote
	8/26/85	Paul Bunyan 4504	Not available	912	Arrived Pre-Cleaned
	9/26/85	DM-922	Corn Oil	914	Removed corn oil
	11/18/85	DM-944	Coal Tar, Oil	917	Gas free and clean; coal tar and residual oil
	1/7/86	DM-949	Black Oil	925	Bucketed out heavy residue

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATE(S)	VESSEL NUMBER	PREVIOUS 3 CARGOES	WORK ORDER NO.	ADDITIONAL INFO.
Dravo Mechling (cont'd.)	1/20/86	LCD-4901	Diesel Oil	959	Arrived Pre-Cleaned. Removed mud and rust from rake.
	2/4/86	DM-928	Black Liquor	957	Gas free and clean double skin barge
	2/21/86	DM-932	Coal Tar, Creosote	953	Gas free and clean; coal tar and creosote with heavy deposits
	3/4/86	DM-905	Coal Tar	959	Gas free and clean; coal tar
	5/1/86	JAR-12	Coal Tar	961	Unavailable
	5/19/86	DM-946	"Black Oil", Coal Tar, Creosote	965	Gas free and clean coal tar and creosote and heavy bottoms
	6/13/86	DM-958	Styrene	973	Clean out styrene polymer; chisel, scrape and bucket from tanks
	8/19/86	DM-950	Coal Tar; Creosote	976	Gas free and clean; coal tar and creosote
	12/5/86	DM-945	Coal Tar; Creosote	990	Gas free and clean; heavy creosote and coal tar deposits
	1/14/87	DM-951	Coal tar; Creosote	996	Gas free and clean; coal tar and creoste
	2/3/87	NMS-3101	Asphalt	Unavailable	Clean hard asphalt residue - all cargo tanks
	3/2/87	NMS-3103	No. 6 oil, Asphalt	997	Gas free and clean; #6 oil and asphalt
	5/8/87	NMS-3105	No. 6 Oil; Coal Tar	1002	Removed heavy deposits of coal tar, #6 oil, and sludge
	6/10/87	DM-948	Coal Tar	1004	Gas free and clean coal tar barge

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATE(S)	VESSEL NUMBER	PREVIOUS 3 CARGOES	WORK ORDER NO.	ADDITIONAL INFO.
Dravo Mechling (cont'd.)	7/24/87	DM-932	Coal Tar	1008	Clean approximately 40 bbls. of solidified product from three main tanks
	12/28/87	DM-2608	Black Oil, Coal Tar	1018	Gas free and clean; heavy deposits of coal tar
	4/8/88	DM-947	Coal Tar; Creosote	1040	Gas free and clean; creosote and coal tar
	7/14/88	DM-952	Coal Tar	1077	Gas free and clean vessel
	10/16/89	DM-947	Creosote & Crude Oil	1137	gas free and clean; pick up approximately 10 drums of heavy product
	1/24/90	MOP-142	Drilling mud tanks	1151	Unavailable
	1/29/90	DM-949	Coal tar	1149	Unavailable
National Marine	1/29/69	LCT-55	Not available	3593	Partially gas free first 4 main tanks
	9/30/69	LCT-66	Not available	3594	Gas free front rake tank
	10/13/69	LCT-45	Oil	3596	Gas free after rake tank No. 5
	6/23/70	NMS-2604	Asphalt	3673	Clean and gas free; removal of solidified asphalt
	9/15/70	NMS-3203	Not available	3705	Clean and gas free
	11/23/70	NMS-1605	Sulphuric acid	3699	Gas free sulphuric acid barge
	3/11/71	LCT-50	Asphalt, #6 oil	3751	Gas free 12,000 barrel tank barge
	3/23/71	NMS-2601	Asphalt, Bunker C	3752	Gas free asphalt and bunker C tanks
	3/31/71	IBC-13	Crude oil	3773	Gas free and clean cargo tanks

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATE(S)	VESSEL NUMBER	PREVIOUS 3 CARGOES	WORK ORDER NO.	ADDITIONAL INFO.
National Marine (cont'd.)	4/30/71	NMS-1201	Suspect Light Oil	3786	Gas free double skin vessel carrying Subchapter O cargo
	12/6/73	LTC-102	Asphalt	3962	Gas free and clean asphalt
	4/18/79	NMS-1459	Methanol	380	Gas free and clean all cargo tanks
	9/22/86	LTC-66	Crude oil	Not available	Unavailable
	9/2/86	NMS-3107	#6 oil	977	Clean for change of cargo
	11/8/86	NMS-3102	Asphalt	988	Clean and gas free vessel
	5/28/88	NMS-3109	Asphalt	1046	clean and gas free vessel
	8/26/88	NMS-3104	#6 oil	1082	Gas free and clean vessel;pick up an bucket out product
	11/9/88	DM-952	Coal Tar Distillate	1097	Gas free and clean; heavy products
	12/7/88	NMS-3105	#6 oil	1099	Gas free and clean; heavyproducts; approximately 65 bbls.
	2/20/89	NMS-1350	#6 oil	1113	Clean and gas free barge
	9/6/89	DM-932	Coal tar	1131/1132	Removed 880 bbls of heavy oily product
	10/27/89	950	Coal Tar	1136	Removed 3 - 5 feet of coal tar from main tanks
	12/11/89	NMS-3203	#6 oil	1143	picked up and bucket out approx. 180 bbls. of heavy products
	12/28/89	NMS-3108	#6 oil	1144	Cleaned for hot work
	3/16/90	DM-949	Oil and Creosote	1149	Removed approximately 480 short tons of oil and creosote
	3/21/90	NMS-3109	Asphalt & No. 6 Oil	1158	Gas free and clean 6 oil and asphalt from barge
	4/12/90	NMS-3108	Asphalt	1144	Gas free and clean asphalt necessary do hot work

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATE(S)	VESSEL NUMBER	PREVIOUS 3 CARGOES	WORK ORDER NO.	ADDITIONAL INFO.
National Marine (cont'd.)	6/15/90	DM-1202	Asphalt	1169	Removed asphalt, sand and water
	1/21/91	NMS-2301	Asphalt	1195	Gas free and clean barge
	5/7/91	NMS-3105	No. 6 Oil	1207	Removed approximately 8 bbls. of B.S.&W.
	6/10/91	NMS-3104	No. 6 Oil	1208	Picked up and bucketed approximatey 50 bbls. Of product
	12/23/91	NMS-3101	Aphalt, No. 6 oil	1223	Removed approximately 349 bbls. of asphalt and #6 oil
	1/21/94	NMS-3102	No. 6 Oil, Asphalt	1297	Removed approx. 328 bbls of asphalt
	3/1/94	NMS-3103	Asphalt	1298	Removed approx. 453 bbls hard asphalt & B.S. & W.

TOTAL BARGES CLEANED FOR THIS CUSTOMER = 112

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATE *	VESSEL #	PREVIOUS 3 CARGOES	WORK ORDER #	ADDITIONAL INFO.
Conoco Oil/ Continental Oil	3/17/78	7041	Crude Oil	not available	not available
	4/16/78	7042	Crude Oil	179	Clean and gas free barge
	5/24/78	7043	Suspected crude oil	179	Gas Free, and clean tank Barge safe for men and fire
	11/10/78	7044	Unknown hydrocarbon	343	Gas Free Barge safe for men and hot work
	1/8/79	7020	Crude Oil	351	Gas Free Tank Barge 7020 safe for men and fire
	2/12/79	7020	Crude Oil		Washed and drained
	3/12/79	Sinclair #8	Suspected rust and sludges	366	Gas Free tank Barge, pick up rust and sludge, back rinse tanks and dry out, safe for men and fire
	4/10/79	7020	suspected crude oil	363	Gas Free 20,000 BBL. Tank Barge safe for men and fire
	4/9/79	7033	suspected crude oil	373	Gas Free 12,000 BBL. Box Barge safe for men and fire
	4/25/79	NMS 1459	suspected water and oil produced from inter bottoms	380	Gas Free double skin Tank Barge including water and products from middle bottom voids, for hot work
	3/18/79	7020	Kerosene	385	Gas fee 20,000 BBL. Barge safe for men and fire, dry out for cargo, rebuilt on hatches and pump wells
	6/8/79	7020	Kerosene	391	Gas Free and clean Barge, safe for men safe for fire. Dry tank.
	7/24/79	7026	Bunker C	396	Gas free and clean 6 oil Barge, safe for men safe for fire, including rake tanks, pipe lines, etc.
	9/25/79	7020	Crude oil	not available	Washed and drained
	10/2/79	7041	suspected crude oil	438	Gas Free and clean tank barge, including rakes, pipe lines and pump wells, safe for men safe for fire

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATE *	VESSEL #	PREVIOUS 3 CARGOES	WORK ORDER #	ADDITIONAL INFO.
	10/15/79	7001	Crude Oil	440	Gas Free and clean main tanks, pumproom, rake ends and interbottom tanks, safe for men safe for fire including pipe lines
	10/19/79	7002	Crude Oil	439	Gas free and clean pump room compt. cargo tank and voids and wing walls including pipe lines, safe for men, safe for fire
	1/21/80	7002	Crude Oil	478	Gas free double skin tank barge including pump room, pipe lines, etc. safe for men, safe for fire
	2/12/80	7027	Crude Oil	480	Gas Free, clean main cargo tanks, rakes, voids, pipe line and cargo pump, safe for men, safe for fire
	2/19/80	NMS 1459	suspected detergent, scale, rust	484	Gas Free double skin, 10,000 BBl. Tank Barge, remove scale and rust from cargo tank, chemical & steam Barge safe for men and fire
	4/22/80	7041	Crude Oil	498	Gas Free and clean barge, safe for men, safe for fire, in order to make repairs
	5/2/80	7043	suspected crude oil	501	Gas Free and clean tank barge, safe for men, safe for fire, including rake tank
	5/13/80	7004	Crude Oil, Soybean Oil	504	Gas free 30,000 BBL. tank Barge carrying crudt and soy bean oil, safe for men, safe for fire including pipe lines, pump wells and rake ends
	7/8/80	7006	suspected soy bean oil and distillate	513	Gas free and clean 300 x 50 x 15' tank barge. Safe for men, safe for fire and for change of cargo - soybean oil and gas oil last cargo
	8/19/80	7007	suspected soybean and gas oil distillate	521	Gas Free and clean 300' x 50' x 15' Tank Barge safe for fire and change of Cargo, cargoes carried, Soy Bean Oil, and gas oil

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATE *	VESSEL #	PREVIOUS 3 CARGOES	WORK ORDER #	ADDITIONAL INFO.
	8/27/80	7002	Distillate	519	Gas Free and clean double skin tank barge safe for men and safe for fire, including pump room, cargo and hydrolic piping
	10/17/80	7001	crude oil	524	Gas Free and clean double skin tank barge, safe for men, safe for fire including pump room, wing tanks and all piping systems. This Barge had a deposit of heavy products in two cargo tanks which had to be loosened with air hammers, and bucketed from tanks, requiring extra hrs. of cleaning time
	10/22/80	7006	suspected heavy crude oil	555	Hot water wash Tank Barge, flush and drop pipe lines and pump wells, dry tanks, pick up as required for change of cargo, tanks contained deposit of wax which had to be picked up and then tanks rewashed.
	10/22/80	7007	suspected crude oil and wax	556	Hot water wash products from main cargo tank, flush pipe lines and pump well, pick up and dry tanks. Pick up tanks and rerinse.
	2/16/81	7043	Crude Oil	574	Gas Free and clean vessel, safe for men, safe for fire, including pipe line and voids.
	4/13/81	7003	Crude Oil	577	Gas free and clean 265' x 54 x 12' double skin tank barge, carving heavy products, necessary to bucket out residue, clean, safe for men, safe for fire, including coils, pipe lines and deck boxes.
	7/31/81	7043	Crude Oil	594	Gas free and clean tank barge, safe for men, safe for hot work, including pipe lines, pollution boxes, rakes, and pump wells.

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATE *	VESSEL #	PREVIOUS 3 CARGOES	WORK ORDER #	ADDITIONAL INFO.
	3/1/82	7027	Diesel	not available	not available

TOTAL BARGES CLEANED FOR THIS CUSTOMER =

* - Based on date from Marine Chemist's Gas Free Certificate

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATE(S)*	VESSEL NUMBER	PREVIOUS 3 CARGOES	WORK ORDER NO.	ADDITIONAL INFO.
Beazer-East, Inc. (formerly Kopper's Company)	5/2/86	JAR-12		961	Approx. 1852 bbls of coal tar removed
	7/4/86	JAR-8		972	Cleaned creosote and coal tar from tanks. Approx. 60 bbls.

TOTAL BARGES CLEANED FOR THIS CUSTOMER = 2

* - Based on date from Marine Chemist's Gas Free Certificate

SBA SHIPYARDS, INC.
PROBABLE SOURCES OF CONTAMINANTS CURRENTLY PRESENT IN TANKS AND PITS

COMPANY	DATES	VESSEL #	PREVIOUS 3 CARGOS	WORK ORDER #	ADDITIONAL INFORMATION
Barge Transport Co. 1818 McKinney Avenue Houston, TX 77003	8/21/70	Cape Cod	Suspect crude oil	3693	Gas free 8500 barrel tank barge
	8/31/70	Denver	Suspect crude oil	3697	Gas free 8400 barrel tank barge
	3/30/71	Curtis, Jr.	Suspect crude oil	3768	Gas free 8,500 barrel tank barge
	12/20/73	Jimmie T	Suspect crude oil	3975	Gas free tank barge
	1/22/74	Cherokee	Suspect crude oil	3977	Gas free 8,500 barrel tank barge
	1/29/74	Choctaw	Suspect crude oil	3981	Gas free vessel
	2/26/74	Cape May	Suspect crude oil	3984	Gas free 9,000 barrel tank barge
	4/1/74	Trinity	Suspect crude oil	3989	Gas free 8,500 barrel tank barge
	4/4/74	Denver	Suspect crude oil	3991	Gas free 8,500 barrel tank barge
	4/8/74	Shasta	Suspect crude oil	3992	Gas free 17,000 barrel tank barge
	5/7/74	St. Clair	Light Crude Oil	4000	Gas free 8,500 barrel tank barge
	5/28/74	Shavano	Suspect crude oil	4004	Gas free 16,000 barrel tank barge
	6/26/74	Ranier	Suspect crude oil	4008	Gas free 17,0900 barrel tank barge
	7/2/74	Huran	Suspect crude oil	4010	Gas free 8,500 barrel tank barge
	8/5/74	Curtis, Jr.	Suspect crude oil	4011	Gas free 8,500 barrel tank barge
	8/27/74	Salvador	Suspect crude oil	4016	Gas free 8,500 barrel tank barge
	9/16/74	Cape Cod	Suspect crude oil	4021	Gas free 9,000 barrel tank barge
	7/78	Choctaw	Suspect crude oil	195	Cleaned barge including bow rake
	11/78	St. Clair	Light Crude Oil	347	Cleaned barge

Barge Transport Co. 1818 McKinney Avenue Houston, TX 77003	12/78	Trinity	Crude Oil	345	Cleaned barge
	3/79	Jimmie T	Suspect crude oil	368	Gas free 9000 barrel tank barge
	3/79	Betty	Crude Oil	375	Cleaned 8,500 bbl barge
	3/79	Neuces	Crude Oil	376	Gas Free Tank barge
	5/79	St. Clair	Light Crude Oil	386	Gas free 8,500 bbl tank barge
	6/79	San Jacinto	Crude Oil	388	Gas free 8,500 bbl barge
	6/79	Cape Cod	Crude Oil	392	Gas free 8,500 bbl barge
	6/79	Lavaca	Crude Oil	390	Gas free 8,500 bbl barge
	9/79	Neuces	Crude Oil	420	Gas free tank barge
	10/79	Jimmie T.	Crude Oil	441	Gas free and clean 8,500 bbl tank barge
	10/79	Comanchie	Crude Oil	444	Gas free and flush cargo lines or 8,500 bbl barge
	11/79	Brazos	Crude Oil	448	Gas free 8,500 bbl tank barge
	2/80	Apachie	Crude Oil	487	Gas free 9,500 bbl tank barge
	4/80	Cape May	Crude Oil	494	Gas free and clean 9,000 bbl tank barge
	4/80	Ontario	Crude Oil	500	Gas free and clean 9,000 bbl tank barge; rust, scale, heavy products
	5/80	Cape Cod	Crude Oil	499	Gas free and clean barge
	6/80	Brazos	Crude Oil	510	Gas free and clean barge
	7/80	Jimmie T.	Crude Oil	503	Gas free 8,500 tank barge
	7/80	Neuces	Crude Oil	516	Gas free barge
	9/80	Panama	Crude Oil	517	Gas free and clean tank barge
	10/80	Apache	Crude Oil	554	Gas free and clean 9,000 bbl tank barge
	3/81	Navidad	Crude Oil	575	Gas free vessel - 208 man hours

THIS MSDS COMPLIES WITH 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD)

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PRODUCT NAME: CUMENE
CAS NUMBER: 98 82 8

DATA SHEET NO: 0016041-002
LATEST REVISION DATE: 12/88-88357

SECTION I-PRODUCT IDENTIFICATION

GENERAL OR GENERIC ID: AROMATIC HYDROCARBON
DOT HAZARD CLASSIFICATION: FLAMMABLE LIQUID (173.115)

SECTION II-COMPONENTS

IF PRESENT, IARC, NTP AND OSHA CARCINOGENS AND CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III SECTION 313 ARE IDENTIFIED IN THIS SECTION.
SEE DEFINITION PAGE FOR CLARIFICATION

INGREDIENT	% (BY WT)	NOTE
ISOPROPYLBENZENE	100	(1)
CAS #: 98-82-8	PEL: 50 PPM - SKIN	TLV: 50 PPM - SKIN

(1): SKIN ABSORPTION MAY POTENTIALLY CONTRIBUTE TO THE OVERALL EXPOSURE TO THIS MATERIAL. APPROPRIATE MEASURES SHOULD BE TAKEN TO PREVENT ABSORPTION SO THAT THE TLV IS NOT INVALIDATED.
THIS CHEMICAL IS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF SARA TITLE III.

SECTION III-PHYSICAL DATA

PROPERTY	REFINEMENT	MEASUREMENT
BOILING POINT	FOR PRODUCT	306.00 DEG F
		@ 760.00 MMHG

CONTINUED ON PAGE: 2

SECTION III-PHYSICAL DATA (CONTINUED)

PROPERTY	REFINEMENT	MEASUREMENT
VAPOR PRESSURE	FOR PRODUCT	8.00 MMHG
		@ 68.00 DEG F
		(20.00 DEG C)
SPECIFIC VAPOR DENSITY	AIR = 1	4.1
SPECIFIC GRAVITY		.860
		@ 68.00 DEG F
		(20.00 DEG C)
PERCENT VOLATILES		100.00%
EVAPORATION RATE		SLOWER THAN ETHER

SECTION IV-FIRE AND EXPLOSION INFORMATION

FLASH POINT(TCC) 97.0 DEG F
(36.1 DEG C)
EXPLOSIVE LIMIT (PRODUCT) LOWER - .9%
EXTINGUISHING MEDIA: REGULAR FOAM OR CARBON DIOXIDE OR DRY CHEMICAL
HAZARDOUS DECOMPOSITION PRODUCTS: MAY FORM TOXIC MATERIALS:, CARBON DIOXIDE AND CARBON MONOXIDE, VARIOUS HYDROCARBONS, ETC.
FIREFIGHTING PROCEDURES: WEAR SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN THE POSITIVE PRESSURE DEMAND MODE WHEN FIGHTING FIRES.
SPECIAL FIRE & EXPLOSION HAZARDS: NEVER USE WELDING OR CUTTING TORCH ON OR NEAR DRUM (EVEN EMPTY) BECAUSE PRODUCT (EVEN JUST RESIDUE) CAN IGNITE EXPLOSIVELY. ALL FIVE GALLON PAILS AND LARGER METAL CONTAINERS INCLUDING TANK CARS AND TANK TRUCKS SHOULD BE GROUNDED AND/OR BONDED WHEN MATERIAL IS TRANSFERRED. VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL ALONG THE GROUND OR MAY BE MOVED BY VENTILATION AND IGNITED BY PILOT LIGHTS, OTHER FLAMES, SPARKS, HEATERS, SMOKING, ELECTRIC MOTORS, STATIC DISCHARGE, OR OTHER IGNITION SOURCES AT LOCATIONS DISTANT FROM MATERIAL HANDLING POINT.
NFPA CODES: HEALTH- 0 FLAMMABILITY- 2 REACTIVITY- 0

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SECTION V-HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVEL 50 PPM - SKIN
THRESHOLD LIMIT VALUE 50 PPM - SKIN
EFFECTS OF ACUTE OVEREXPOSURE: FOR PRODUCT

EYES - CAN CAUSE SEVERE IRRITATION, REDNESS, TEARING, BLURRED VISION.
SKIN - PROLONGED OR REPEATED CONTACT CAN CAUSE MODERATE IRRITATION, DEFATTING, DERMATITIS.
BREATHING - EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL AND RESPIRATORY IRRITATION, CENTRAL NERVOUS SYSTEM EFFECTS INCLUDING DIZZINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE AND POSSIBLE UNCONSCIOUSNESS, AND EVEN DEATH.
SWALLOWING - CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING, AND DIARRHEA. ASPIRATION OF MATERIAL INTO THE LUNGS CAN CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL.

FIRST AID:

IF ON SKIN: THOROUGHLY WASH EXPOSED AREA WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING. LAUNDER CONTAMINATED CLOTHING BEFORE RE-USE.
REMOVE CONTAMINATED SHOES PROMPTLY. DISCARD SHOES SATURATED WITH THIS PRODUCT.
IF IN EYES: FLUSH WITH LARGE AMOUNTS OF WATER, LIFTING UPPER AND LOWER LIDS OCCASIONALLY, GET MEDICAL ATTENTION.
IF SWALLOWED: DO NOT INDUCE VOMITING, KEEP PERSON WARM, QUIET, AND GET MEDICAL ATTENTION. ASPIRATION OF MATERIAL INTO THE LUNGS DUE TO VOMITING CAN CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL.
IF BREATHED: IF AFFECTED, REMOVE INDIVIDUAL TO FRESH AIR. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN. IF BREATHING HAS STOPPED GIVE ARTIFICIAL RESPIRATION. KEEP PERSON WARM, QUIET AND GET MEDICAL ATTENTION.

PRIMARY ROUTE(S) OF ENTRY:

INHALATION
SKIN ABSORPTION
SKIN CONTACT

EFFECTS OF CHRONIC OVEREXPOSURE: FOR PRODUCT

OVEREXPOSURE TO THIS MATERIAL (OR ITS COMPONENTS) HAS APPARENTLY BEEN FOUND TO CAUSE THE FOLLOWING EFFECTS IN LABORATORY ANIMALS:, LIVER ABNORMALITIES,

 CONTINUED ON PAGE: 4

SECTION V-HEALTH HAZARD DATA (CONTINUED)

KIDNEY DAMAGE

SECTION VI-REACTIVITY DATA

HAZARDOUS POLYMERIZATION: CANNOT OCCUR
STABILITY: STABLE
INCOMPATIBILITY: AVOID CONTACT WITH:, STRONG OXIDIZING AGENTS.

SECTION VII-SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

SMALL SPILL: ABSORB LIQUID ON PAPER, VERMICULITE, FLOOR ABSORBENT, OR OTHER ABSORBENT MATERIAL AND TRANSFER TO HOOD.
LARGE SPILL: ELIMINATE ALL IGNITION SOURCES (FLARES, FLAMES INCLUDING PILOT LIGHTS, ELECTRICAL SPARKS). PERSONS NOT WEARING PROTECTIVE EQUIPMENT SHOULD BE EXCLUDED FROM AREA OF SPILL UNTIL CLEAN-UP HAS BEEN COMPLETED. STOP SPILL AT SOURCE, DIKE AREA OF SPILL TO PREVENT SPREADING, PUMP LIQUID TO SALVAGE TANK. REMAINING LIQUID MAY BE TAKEN UP ON SAND, CLAY, EARTH, FLOOR ABSORBENT, OR OTHER ABSORBENT MATERIAL AND SHOVELED INTO CONTAINERS.

WASTE DISPOSAL METHOD:

SMALL SPILL: DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
LARGE SPILL: DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION VIII-PROTECTIVE EQUIPMENT TO BE USED

RESPIRATORY PROTECTION: IF WORKPLACE EXPOSURE LIMIT(S) OF PRODUCT OR ANY COMPONENT IS EXCEEDED (SEE SECTION II), A NIOSH/MSHA APPROVED AIR SUPPLIED RESPIRATOR IS ADVISED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. OSHA REGULATIONS ALSO PERMIT OTHER NIOSH/MSHA RESPIRATORS (NEGATIVE PRESSURE TYPE) UNDER SPECIFIED

CONDITIONS (SEE YOUR SAFETY EQUIPMENT SUPPLIER). ENGINEERING OR ADMINISTRATIVE

 CONTINUED ON PAGE: 5

SECTION VIII-PROTECTIVE EQUIPMENT TO BE USED (CONTINUED)

CONTROLS SHOULD BE IMPLEMENTED TO REDUCE EXPOSURE.
VENTILATION: PROVIDE SUFFICIENT MECHANICAL (GENERAL AND/OR LOCAL EXHAUST) VENTILATION TO MAINTAIN EXPOSURE BELOW TLV(S).
PROTECTIVE GLOVES: WEAR RESISTANT GLOVES SUCH AS:, POLYVINYL ALCOHOL
EYE PROTECTION: CHEMICAL SPLASH GOGGLES IN COMPLIANCE WITH OSHA REGULATIONS ARE ADVISED; HOWEVER, OSHA REGULATIONS ALSO PERMIT OTHER TYPE SAFETY GLASSES. (CONSULT YOUR SAFETY EQUIPMENT SUPPLIER)
OTHER PROTECTIVE EQUIPMENT: TO PREVENT REPEATED OR PROLONGED SKIN CONTACT, WEAR IMPERVIOUS CLOTHING AND BOOTS.

SECTION IX-SPECIAL PRECAUTIONS OR OTHER COMMENTS

CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMPTIED.SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUES (VAPOR, LIQUID, AND/OR SOLID), ALL HAZARD PRECAUTIONS GIVEN IN THE DATA SHEET MUST BE OBSERVED.
THE INFORMATION ACCUMULATED HEREIN IS BELIEVED TO BE ACCURATE BUT IS NOT WARRANTED TO BE WHETHER ORIGINATING WITH THE COMPANY OR NOT. RECIPIENTS ARE ADVISED TO CONFIRM IN ADVANCE OF NEED THAT THE INFORMATION IS CURRENT, APPLICABLE, AND SUITABLE TO THEIR CIRCUMSTANCES.

 LAST PAGE--SEE ATTACHMENT PAGE ENCLOSED--LAST PAGE

THIS MSDS COMPLIES WITH 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD)

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PRODUCT NAME: CUMENE
CAS NUMBER: 98 82 8

DATA SHEET NO: 0016041-003
PREPARED: 02/21/90
SUPERSEDES: 12/22/88

SECTION I-PRODUCT IDENTIFICATION

GENERAL OR GENERIC ID: AROMATIC HYDROCARBON
DOT HAZARD CLASSIFICATION: FLAMMABLE LIQUID (173.115)

SECTION II-COMPONENTS

IF PRESENT, IARC, NTP AND OSHA CARCINOGENS AND CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III SECTION 313 ARE IDENTIFIED IN THIS SECTION.
SEE DEFINITION PAGE FOR CLARIFICATION

INGREDIENT	% (BY WT)	NOTE
ISOPROPYLBENZENE	100	(1)
CAS #: 98-82-8 PEL: 50 PPM - SKIN	TLV: 50 PPM - SKIN	

(1): SKIN ABSORPTION MAY POTENTIALLY CONTRIBUTE TO THE OVERALL EXPOSURE TO THIS MATERIAL. APPROPRIATE MEASURES SHOULD BE TAKEN TO PREVENT ABSORPTION SO THAT THE TLV IS NOT INVALIDATED.
THIS CHEMICAL IS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF SARA TITLE III.

SECTION III-PHYSICAL DATA

PROPERTY	REFINEMENT	MEASUREMENT
BOILING POINT	FOR PRODUCT	306.00 DEG F
		@ 760.00 MMHG

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SECTION III-PHYSICAL DATA (CONTINUED)

PROPERTY	REFINEMENT	MEASUREMENT
VAPOR PRESSURE	FOR PRODUCT	8.00 MMHG
		@ 68.00 DEG F
		(20.00 DEG C)
SPECIFIC VAPOR DENSITY	AIR = 1	4.1
SPECIFIC GRAVITY		.860
		@ 68.00 DEG F
		(20.00 DEG C)
PERCENT VOLATILES		100.00%
EVAPORATION RATE		SLOWER THAN ETHER

SECTION IV-FIRE AND EXPLOSION INFORMATION

FLASH POINT(TCC) 97.0 DEG F
(36.1 DEG C)
EXPLOSIVE LIMIT (PRODUCT) LOWER - .9%
EXTINGUISHING MEDIA: REGULAR FOAM OR CARBON DIOXIDE OR DRY CHEMICAL
HAZARDOUS DECOMPOSITION PRODUCTS: MAY FORM TOXIC MATERIALS:, CARBON DIOXIDE AND CARBON MONOXIDE, VARIOUS HYDROCARBONS, ETC.
FIREFIGHTING PROCEDURES: WEAR SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN THE POSITIVE PRESSURE DEMAND MODE WHEN FIGHTING FIRES.
SPECIAL FIRE & EXPLOSION HAZARDS: NEVER USE WELDING OR CUTTING TORCH ON OR NEAR DRUM (EVEN EMPTY) BECAUSE PRODUCT (EVEN JUST RESIDUE) CAN IGNITE EXPLOSIVELY. ALL FIVE GALLON PAILS AND LARGER METAL CONTAINERS INCLUDING TANK CARS AND TANK TRUCKS SHOULD BE GROUNDED AND/OR BONDED WHEN MATERIAL IS TRANSFERRED.
VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL ALONG THE GROUND OR MAY BE MOVED BY VENTILATION AND IGNITED BY PILOT LIGHTS, OTHER FLAMES, SPARKS, HEATERS, SMOKING, ELECTRIC MOTORS, STATIC DISCHARGE, OR OTHER IGNITION SOURCES AT LOCATIONS DISTANT FROM MATERIAL HANDLING POINT.
NFPA CODES: HEALTH- 0 FLAMMABILITY- 2 REACTIVITY- 0

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SECTION V-HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVEL 50 PPM - SKIN
THRESHOLD LIMIT VALUE 50 PPM - SKIN
EFFECTS OF ACUTE OVEREXPOSURE: FOR PRODUCT

EYES - CAN CAUSE SEVERE IRRITATION; REDNESS; TEARING; BLURRED VISION.
SKIN - PROLONGED OR REPEATED CONTACT CAN CAUSE MODERATE IRRITATION, DEFATTING, DERMATITIS.
BREATHING - EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL AND RESPIRATORY IRRITATION, CENTRAL NERVOUS SYSTEM EFFECTS INCLUDING DIZZINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE AND POSSIBLE UNCONSCIOUSNESS, AND EVEN DEATH.
SWALLOWING - CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING, AND DIARRHEA. ASPIRATION OF MATERIAL INTO THE LUNGS CAN CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL.

FIRST AID:

IF ON SKIN: THOROUGHLY WASH EXPOSED AREA WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING. LAUNDER CONTAMINATED CLOTHING BEFORE RE-USE.
REMOVE CONTAMINATED SHOES PROMPTLY. DISCARD SHOES SATURATED WITH THIS PRODUCT.
IF IN EYES: FLUSH WITH LARGE AMOUNTS OF WATER, LIFTING UPPER AND LOWER LIDS OCCASIONALLY, GET MEDICAL ATTENTION.
IF SWALLOWED: DO NOT INDUCE VOMITING, KEEP PERSON WARM, QUIET, AND GET MEDICAL ATTENTION. ASPIRATION OF MATERIAL INTO THE LUNGS DUE TO VOMITING CAN CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL.
IF BREATHED: IF AFFECTED, REMOVE INDIVIDUAL TO FRESH AIR. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN. IF BREATHING HAS STOPPED GIVE ARTIFICIAL RESPIRATION. KEEP PERSON WARM, QUIET AND GET MEDICAL ATTENTION.

PRIMARY ROUTE(S) OF ENTRY:

INHALATION
SKIN ABSORPTION
SKIN CONTACT

EFFECTS OF CHRONIC OVEREXPOSURE: FOR PRODUCT

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SECTION V-HEALTH HAZARD DATA (CONTINUED)

A 14 WEEK VAPOR INHALATION EXPOSURE OF MALE AND FEMALE LABORATORY RATS TO CUMENE (ISOPROPYLBENZENE), CAS# 98-82-8, RESULTED IN AN INCREASED INCIDENCE OF CATATACTS IN BOTH SEXES AND A DECREASE IN MOTOR ACTIVITY IN ONLY MALES. THESE CHANGES IN THE EYE AND CENTRAL NERVOUS SYSTEM WERE OBSERVED IN THER ATS AT EXPOSURES ABOVE THE PEL (50 PPM). THE BIOLOGICAL SIGNIFICANCE OF THESE FINDINGS TO MAN IS UNKNOWN.
OVEREXPOSURE TO THIS MATERIAL (OR ITS COMPONENTS) HAS APPARENTLY BEEN FOUND TO CAUSE THE FOLLOWING EFFECTS IN LABORATORY ANIMALS:, LIVER ABNORMALITIES, KIDNEY DAMAGE

SECTION VI-REACTIVITY DATA

HAZARDOUS POLYMERIZATION: CANNOT OCCUR
STABILITY: STABLE
INCOMPATIBILITY: AVOID CONTACT WITH:, STRONG OXIDIZING AGENTS.

SECTION VII-SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

SMALL SPILL: ABSORB LIQUID ON PAPER, VERMICULITE, FLOOR ABSORBENT, OR OTHER ABSORBENT MATERIAL AND TRANSFER TO HOOD.
LARGE SPILL: ELIMINATE ALL IGNITION SOURCES (FLARES, FLAMES INCLUDING PILOT LIGHTS, ELECTRICAL SPARKS). PERSONS NOT WEARING PROTECTIVE EQUIPMENT SHOULD BE EXCLUDED FROM AREA OF SPILL UNTIL CLEAN-UP HAS BEEN COMPLETED. STOP SPILL AT SOURCE, DIKE AREA OF SPILL TO PREVENT SPREADING, PUMP LIQUID TO SALVAGE TANK. REMAINING LIQUID MAY BE TAKEN UP ON SAND, CLAY, EARTH, FLOOR ABSORBENT, OR OTHER ABSORBENT MATERIAL AND SHOVELED INTO CONTAINERS.

WASTE DISPOSAL METHOD:

SMALL SPILL: DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.

LARGE SPILL: DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.

 CONTINUED ON PAGE: 5

SECTION VIII-PROTECTIVE EQUIPMENT TO BE USED

RESPIRATORY PROTECTION: IF WORKPLACE EXPOSURE LIMIT(S) OF PRODUCT OR ANY COMPONENT IS EXCEEDED (SEE SECTION II), A NIOSH/MSHA APPROVED AIR SUPPLIED RESPIRATOR IS ADVISED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. OSHA REGULATIONS ALSO PERMIT OTHER NIOSH/MSHA RESPIRATORS (NEGATIVE PRESSURE TYPE) UNDER SPECIFIED CONDITIONS (SEE YOUR SAFETY EQUIPMENT SUPPLIER). ENGINEERING OR ADMINISTRATIVE CONTROLS SHOULD BE IMPLEMENTED TO REDUCE EXPOSURE.

VENTILATION: PROVIDE SUFFICIENT MECHANICAL (GENERAL AND/OR LOCAL EXHAUST) VENTILATION TO MAINTAIN EXPOSURE BELOW TLV(S).

PROTECTIVE GLOVES: WEAR RESISTANT GLOVES SUCH AS:, POLYVINYL ALCOHOL

EYE PROTECTION: CHEMICAL SPLASH GOGGLES IN COMPLIANCE WITH OSHA REGULATIONS ARE ADVISED; HOWEVER, OSHA REGULATIONS ALSO PERMIT OTHER TYPE SAFETY GLASSES. (CONSULT YOUR SAFETY EQUIPMENT SUPPLIER)

OTHER PROTECTIVE EQUIPMENT: TO PREVENT REPEATED OR PROLONGED SKIN CONTACT, WEAR IMPERVIOUS CLOTHING AND BOOTS.

SECTION IX-SPECIAL PRECAUTIONS OR OTHER COMMENTS

CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMPTIED.SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUES (VAPOR, LIQUID, AND/OR SOLID), ALL HAZARD PRECAUTIONS GIVEN IN THE DATA SHEET MUST BE OBSERVED.

THE INFORMATION ACCUMULATED HEREIN IS BELIEVED TO BE ACCURATE BUT IS NOT WARRANTED TO BE WHETHER ORIGINATING WITH THE COMPANY OR NOT. RECIPIENTS ARE ADVISED TO CONFIRM IN ADVANCE OF NEED THAT THE INFORMATION IS CURRENT, APPLICABLE, AND SUITABLE TO THEIR CIRCUMSTANCES.

 LAST PAGE--SEE ATTACHMENT PAGE ENCLOSED--LAST PAGE

THIS MSDS COMPLIES WITH 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD)

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PRODUCT NAME: CUMENE
CAS NUMBER: 98 82 8

DATA SHEET NO: 0016041-004
PREPARED: 03/06/91
SUPERSEDES: 02/21/90

SECTION I-PRODUCT IDENTIFICATION

GENERAL OR GENERIC ID: AROMATIC HYDROCARBON
DOT HAZARD CLASSIFICATION: FLAMMABLE LIQUID (173.115)

SECTION II-COMPONENTS

IF PRESENT, IARC, NTP AND OSHA CARCINOGENS AND CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III SECTION 313 ARE IDENTIFIED IN THIS SECTION.
SEE DEFINITION PAGE FOR CLARIFICATION

INGREDIENT	% (BY WT)	NOTE
ISOPROPYLBENZENE	100	(1)
CAS #: 98-82-8 PEL: 50 PPM - SKIN	TLV: 50 PPM - SKIN	

(1): SKIN ABSORPTION MAY POTENTIALLY CONTRIBUTE TO THE OVERALL EXPOSURE TO THIS MATERIAL. APPROPRIATE MEASURES SHOULD BE TAKEN TO PREVENT ABSORPTION SO THAT THE TLV IS NOT INVALIDATED.
THIS CHEMICAL IS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF SARA TITLE III.

SECTION III-PHYSICAL DATA

PROPERTY	REFINEMENT	MEASUREMENT
BOILING POINT	FOR PRODUCT	306.00 DEG F
		@ 760.00 MMHG

CONTINUED ON PAGE: 2

SECTION III-PHYSICAL DATA (CONTINUED)

PROPERTY	REFINEMENT	MEASUREMENT
VAPOR PRESSURE	FOR PRODUCT	8.00 MMHG
		@ 68.00 DEG F
		(20.00 DEG C)
SPECIFIC VAPOR DENSITY	AIR = 1	4.1
SPECIFIC GRAVITY		.860
		@ 68.00 DEG F
		(20.00 DEG C)
PERCENT VOLATILES		100.00%
EVAPORATION RATE		SLOWER THAN ETHER

SECTION IV-FIRE AND EXPLOSION INFORMATION

FLASH POINT(TCC) 97.0 DEG F
(36.1 DEG C)
EXPLOSIVE LIMIT (PRODUCT) LOWER - .9%
EXTINGUISHING MEDIA: REGULAR FOAM OR CARBON DIOXIDE OR DRY CHEMICAL
HAZARDOUS DECOMPOSITION PRODUCTS: MAY FORM TOXIC MATERIALS:, CARBON DIOXIDE AND CARBON MONOXIDE, VARIOUS HYDROCARBONS, ETC.
FIREFIGHTING PROCEDURES: WEAR SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN THE POSITIVE PRESSURE DEMAND MODE WHEN FIGHTING FIRES.
SPECIAL FIRE & EXPLOSION HAZARDS: NEVER USE WELDING OR CUTTING TORCH ON OR NEAR DRUM (EVEN EMPTY) BECAUSE PRODUCT (EVEN JUST RESIDUE) CAN IGNITE EXPLOSIVELY. ALL FIVE GALLON PAILS AND LARGER METAL CONTAINERS INCLUDING TANK CARS AND TANK TRUCKS SHOULD BE GROUNDED AND/OR BONDED WHEN MATERIAL IS TRANSFERRED. VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL ALONG THE GROUND OR MAY BE MOVED BY VENTILATION AND IGNITED BY PILOT LIGHTS, OTHER FLAMES, SPARKS, HEATERS, SMOKING, ELECTRIC MOTORS, STATIC DISCHARGE, OR OTHER IGNITION SOURCES AT LOCATIONS DISTANT FROM MATERIAL HANDLING POINT.
NFPA CODES: HEALTH- 2 FLAMMABILITY- 3 REACTIVITY- 0

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SECTION V-HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVEL	50	PPM - SKIN
THRESHOLD LIMIT VALUE	50	PPM - SKIN

EFFECTS OF ACUTE OVEREXPOSURE:

EYES - CAN CAUSE SEVERE IRRITATION; REDNESS; TEARING; BLURRED VISION.
SKIN - PROLONGED OR REPEATED CONTACT CAN CAUSE MODERATE IRRITATION, DEFATTING, DERMATITIS.
BREATHING - EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL AND RESPIRATORY IRRITATION, CENTRAL NERVOUS SYSTEM EFFECTS INCLUDING DIZZINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE AND POSSIBLE UNCONSCIOUSNESS, AND EVEN DEATH.
SWALLOWING - CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING, AND DIARRHEA. ASPIRATION OF MATERIAL INTO THE LUNGS CAN CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL.

FIRST AID:

IF ON SKIN: THOROUGHLY WASH EXPOSED AREA WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING. LAUNDER CONTAMINATED CLOTHING BEFORE RE-USE.
REMOVE CONTAMINATED SHOES PROMPTLY. DISCARD SHOES SATURATED WITH THIS PRODUCT.
IF IN EYES: FLUSH WITH LARGE AMOUNTS OF WATER, LIFTING UPPER AND LOWER LIDS OCCASIONALLY, GET MEDICAL ATTENTION.
IF SWALLOWED: DO NOT INDUCE VOMITING, KEEP PERSON WARM, QUIET, AND GET MEDICAL ATTENTION. ASPIRATION OF MATERIAL INTO THE LUNGS DUE TO VOMITING CAN CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL.
IF BREATHED: IF AFFECTED, REMOVE INDIVIDUAL TO FRESH AIR. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN. IF BREATHING HAS STOPPED GIVE ARTIFICIAL RESPIRATION. KEEP PERSON WARM, QUIET AND GET MEDICAL ATTENTION.

PRIMARY ROUTE(S) OF ENTRY:

INHALATION
SKIN ABSORPTION
SKIN CONTACT

EFFECTS OF CHRONIC OVEREXPOSURE:

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SECTION V-HEALTH HAZARD DATA (CONTINUED)

A 14 WEEK VAPOR INHALATION EXPOSURE OF MALE AND FEMALE LABORATORY RATS TO CUMENE (ISOPROPYLBENZENE), CAS# 98-82-8, RESULTED IN AN INCREASED INCIDENCE OF CATARACTS IN BOTH SEXES AND A DECREASE IN MOTOR ACTIVITY IN ONLY MALES. THESE CHANGES IN THE EYE AND CENTRAL NERVOUS SYSTEM WERE OBSERVED IN THER ATS AT EXPOSURES ABOVE THE PEL (50 PPM). THE BIOLOGICAL SIGNIFICANCE OF THESE FINDINGS TO MAN IS UNKNOWN.
OVEREXPOSURE TO THIS MATERIAL (OR ITS COMPONENTS) HAS APPARENTLY BEEN FOUND TO CAUSE THE FOLLOWING EFFECTS IN LABORATORY ANIMALS:, LIVER ABNORMALITIES, KIDNEY DAMAGE

SECTION VI-REACTIVITY DATA

HAZARDOUS POLYMERIZATION: CANNOT OCCUR
STABILITY: STABLE
INCOMPATIBILITY: AVOID CONTACT WITH:, STRONG OXIDIZING AGENTS.

SECTION VII-SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

SMALL SPILL: ABSORB LIQUID ON PAPER, VERMICULITE, FLOOR ABSORBENT, OR OTHER ABSORBENT MATERIAL AND TRANSFER TO HOOD.
LARGE SPILL: ELIMINATE ALL IGNITION SOURCES (FLARES, FLAMES INCLUDING PILOT LIGHTS, ELECTRICAL SPARKS). PERSONS NOT WEARING PROTECTIVE EQUIPMENT SHOULD BE EXCLUDED FROM AREA OF SPILL UNTIL CLEAN-UP HAS BEEN COMPLETED. STOP SPILL AT SOURCE, DIKE AREA OF SPILL TO PREVENT SPREADING, PUMP LIQUID TO SALVAGE TANK. REMAINING LIQUID MAY BE TAKEN UP ON SAND, CLAY, EARTH, FLOOR ABSORBENT, OR OTHER ABSORBENT MATERIAL AND SHOVELED INTO CONTAINERS.
PREVENT RUN-OFF TO SEWERS, STREAMS OR OTHER BODIES OF WATER. IF RUN-OFF OCCURS, NOTIFY PROPER AUTHORITIES AS REQUIRED, THAT A SPILL HAS OCCURED.

WASTE DISPOSAL METHOD:

SMALL SPILL: DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.

 CONTINUED ON PAGE: 5

SECTION VII-SPILL OR LEAK PROCEDURES (CONTINUED)

LARGE SPILL: DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION VIII-PROTECTIVE EQUIPMENT TO BE USED

RESPIRATORY PROTECTION: IF WORKPLACE EXPOSURE LIMIT(S) OF PRODUCT OR ANY COMPONENT IS EXCEEDED (SEE SECTION II), A NIOSH/MSHA APPROVED AIR SUPPLIED RESPIRATOR IS ADVISED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. OSHA REGULATIONS ALSO PERMIT OTHER NIOSH/MSHA RESPIRATORS (NEGATIVE PRESSURE TYPE) UNDER SPECIFIED CONDITIONS (SEE YOUR SAFETY EQUIPMENT SUPPLIER). ENGINEERING OR ADMINISTRATIVE CONTROLS SHOULD BE IMPLEMENTED TO REDUCE EXPOSURE.

VENTILATION: PROVIDE SUFFICIENT MECHANICAL (GENERAL AND/OR LOCAL EXHAUST) VENTILATION TO MAINTAIN EXPOSURE BELOW TLV(S).

PROTECTIVE GLOVES: WEAR RESISTANT GLOVES SUCH AS:, POLYVINYL ALCOHOL

EYE PROTECTION: CHEMICAL SPLASH GOGGLES IN COMPLIANCE WITH OSHA REGULATIONS ARE ADVISED; HOWEVER, OSHA REGULATIONS ALSO PERMIT OTHER TYPE SAFETY GLASSES. (CONSULT YOUR SAFETY EQUIPMENT SUPPLIER)

OTHER PROTECTIVE EQUIPMENT: TO PREVENT REPEATED OR PROLONGED SKIN CONTACT, WEAR IMPERVIOUS CLOTHING AND BOOTS.

SECTION IX-SPECIAL PRECAUTIONS OR OTHER COMMENTS

CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMPTIED.SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUES (VAPOR, LIQUID, AND/OR SOLID), ALL HAZARD PRECAUTIONS GIVEN IN THE DATA SHEET MUST BE OBSERVED.

THE INFORMATION ACCUMULATED HEREIN IS BELIEVED TO BE ACCURATE BUT IS NOT WARRANTED TO BE WHETHER ORIGINATING WITH THE COMPANY OR NOT. RECIPIENTS ARE ADVISED TO CONFIRM IN ADVANCE OF NEED THAT THE INFORMATION IS CURRENT, APPLICABLE, AND SUITABLE TO THEIR CIRCUMSTANCES.

 LAST PAGE--SEE ATTACHMENT PAGE ENCLOSED--LAST PAGE

THIS MSDS COMPLIES WITH 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD)

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PRODUCT NAME: CUMENE
CAS NUMBER: 98 82 8

DATA SHEET NO: 0016041-004.001
PREPARED: 05/25/94
SUPERSEDES: 03/06/91
PRINT DATE: 05/31/94

SECTION I-PRODUCT IDENTIFICATION

GENERAL OR GENERIC ID: AROMATIC HYDROCARBON

SECTION II-COMPONENTS

IF PRESENT, IARC, NTP AND OSHA CARCINOGENS AND CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III SECTION 313 ARE IDENTIFIED IN THIS SECTION.

SEE DEFINITION PAGE FOR CLARIFICATION

INGREDIENT	PERCENT	NOTE
ISOPROPYLBENZENE	100	(1)
CAS #: 98-82-8 PEL: 50 PPM - SKIN	TLV: 50 PPM - SKIN	

(1): SKIN ABSORPTION MAY CONTRIBUTE TO TO THE OVERALL ABSORPTION OF THIS MATERIAL. APPROPRIATE MEASURES SHOULD BE TAKEN TO PREVENT ABSORPTION SO THAT THE TLV AND/OR PEL ARE NOT INVALIDATED. SEE SECTION V.
THIS CHEMICAL IS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF SARA TITLE III.

SECTION III-PHYSICAL DATA

PROPERTY	REFINEMENT		MEASUREMENT
BOILING POINT	FOR PRODUCT	XX	306.00 DEG F
		@	760.00 MMHG

CONTINUED ON PAGE: 2

SECTION III-PHYSICAL DATA (CONTINUED)

PROPERTY	REFINEMENT	MEASUREMENT
VAPOR PRESSURE	FOR PRODUCT	8.00 MMHG
		@ 68.00 DEG F
		(20.00 DEG C)
SPECIFIC VAPOR DENSITY	AIR = 1	4.14
SPECIFIC GRAVITY		.860
		@ 68.00 DEG F
		(20.00 DEG C)
PERCENT VOLATILES		100.00%
EVAPORATION RATE		SLOWER THAN ETHER

SECTION IV-FIRE AND EXPLOSION INFORMATION

FLASH POINT(TCC) 97.0 DEG F
(36.1 DEG C)
EXPLOSIVE LIMIT(PRODUCT) LOWER - .9%
EXTINGUISHING MEDIA: REGULAR FOAM OR CARBON DIOXIDE OR DRY CHEMICAL
HAZARDOUS DECOMPOSITION PRODUCTS: MAY FORM TOXIC MATERIALS:, CARBON DIOXIDE AND CARBON MONOXIDE, VARIOUS HYDROCARBONS, ETC.
FIREFIGHTING PROCEDURES: WEAR SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN THE POSITIVE PRESSURE DEMAND MODE WHEN FIGHTING FIRES.
SPECIAL FIRE & EXPLOSION HAZARDS: NEVER USE WELDING OR CUTTING TORCH ON OR NEAR DRUM (EVEN EMPTY) BECAUSE PRODUCT (EVEN JUST RESIDUE) CAN IGNITE EXPLOSIVELY.
ALL FIVE GALLON PAILS AND LARGER METAL CONTAINERS INCLUDING TANK CARS AND TANK TRUCKS SHOULD BE GROUNDED AND/OR BONDED WHEN MATERIAL IS TRANSFERRED.
VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL ALONG THE GROUND OR MAY BE MOVED BY VENTILATION AND IGNITED BY PILOT LIGHTS, OTHER FLAMES, SPARKS,

HEATERS, SMOKING, ELECTRIC MOTORS, STATIC DISCHARGE, OR OTHER IGNITION SOURCES AT LOCATIONS DISTANT FROM MATERIAL HANDLING POINT.
NFPA CODES: HEALTH- 2 FLAMMABILITY- 3 REACTIVITY- 0

CONTINUED ON PAGE: 3

SECTION V-HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVEL	50	PPM - SKIN
THRESHOLD LIMIT VALUE	50	PPM - SKIN

EFFECTS OF ACUTE OVEREXPOSURE:

EYES - EXPOSURE TO LIQUID OR VAPOR CAUSES EYE IRRITATION. SYMPTOMS MAY INCLUDE STINGING, TEARING, REDNESS, AND SWELLING.
SKIN - PROLONGED OR REPEATED CONTACT CAN CAUSE MODERATE IRRITATION, DEFATTING, DERMATITIS.
BREATHING - EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL AND RESPIRATORY IRRITATION, CENTRAL NERVOUS SYSTEM EFFECTS INCLUDING DIZZINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE AND POSSIBLE UNCONSCIOUSNESS, AND EVEN DEATH.
SWALLOWING - CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING, AND DIARRHEA. ASPIRATION OF MATERIAL INTO THE LUNGS CAN CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL.

FIRST AID:

IF ON SKIN: THOROUGHLY WASH EXPOSED AREA WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING. LAUNDER CONTAMINATED CLOTHING BEFORE RE-USE. REMOVE CONTAMINATED SHOES PROMPTLY. DISCARD SHOES SATURATED WITH THIS PRODUCT.
IF IN EYES: FLUSH WITH LARGE AMOUNTS OF WATER, LIFTING UPPER AND LOWER LIDS OCCASIONALLY, GET MEDICAL ATTENTION.
IF SWALLOWED: DO NOT INDUCE VOMITING, KEEP PERSON WARM, QUIET, AND GET MEDICAL ATTENTION. ASPIRATION OF MATERIAL INTO THE LUNGS DUE TO VOMITING CAN CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL.
IF BREATHED: IF AFFECTED, REMOVE INDIVIDUAL TO FRESH AIR. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN. IF BREATHING HAS STOPPED GIVE ARTIFICIAL RESPIRATION. KEEP PERSON WARM, QUIET AND GET MEDICAL ATTENTION.

PRIMARY ROUTE(S) OF ENTRY:

INHALATION
SKIN ABSORPTION
SKIN CONTACT

EFFECTS OF CHRONIC OVEREXPOSURE:

CONTINUED ON PAGE: 4

SECTION V-HEALTH HAZARD DATA (CONTINUED)

A 14 WEEK VAPOR INHALATION EXPOSURE OF MALE AND FEMALE LABORATORY RATS TO CUMENE (ISOPROPYLBENZENE), CAS# 98-82-8, RESULTED IN AN INCREASED INCIDENCE OF CATARACTS IN BOTH SEXES AND A DECREASE IN MOTOR ACTIVITY IN ONLY MALES. THESE CHANGES IN THE EYE AND CENTRAL NERVOUS SYSTEM WERE OBSERVED IN THER ATS AT EXPOSURES ABOVE THE PEL (50 PPM). THE BIOLOGICAL SIGNIFICANCE OF THESE FINDINGS TO MAN IS UNKNOWN.
OVEREXPOSURE TO THIS MATERIAL (OR ITS COMPONENTS) HAS BEEN SUGGESTED AS A CAUSE OF THE FOLLOWING EFFECTS IN LABORATORY ANIMALS, AND MAY AGGRAVATE PRE-EXISTING DISORDERS OF THESE ORGANS IN HUMANS:, LIVER ABNORMALITIES, KIDNEY DAMAGE

SECTION VI-REACTIVITY DATA

HAZARDOUS POLYMERIZATION: CANNOT OCCUR
STABILITY: STABLE
INCOMPATIBILITY: AVOID CONTACT WITH:, STRONG OXIDIZING AGENTS

SECTION VII-SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

SMALL SPILL: ABSORB LIQUID ON VERMICULITE, FLOOR ABSORBENT, OR OTHER ABSORBENT MATERIAL AND TRANSFER TO HOOD.
LARGE SPILL: ELIMINATE ALL IGNITION SOURCES (FLARES, FLAMES INCLUDING PILOT LIGHTS, ELECTRICAL SPARKS). PERSONS NOT WEARING PROTECTIVE EQUIPMENT SHOULD BE EXCLUDED FROM AREA OF SPILL UNTIL CLEAN-UP HAS BEEN COMPLETED. STOP SPILL AT SOURCE. PREVENT FROM ENTERING DRAINS, SEWERS, STREAMS OR OTHER BODIES OF WATER.PREVENT FROM SPREADING. IF RUNOFF OCCURS, NOTIFY AUTHORITIES AS REQUIRED. PUMP OR VACUUM TRANSFER SPILLED PRODUCT TO CLEAN CONTAINERS FOR RECOVERY. ABSORB UNRECOVERABLE PRODUCT.TRANSFER

CONTAMINATED ABSORBENT, SOIL AND OTHER MATERIALS TO CONTAINERS FOR DISPOSAL.
PREVENT RUN-OFF TO SEWERS, STREAMS OR OTHER BODIES OF WATER. IF RUN-OFF OCCURS, NOTIFY PROPER AUTHORITIES AS REQUIRED, THAT A SPILL HAS OCCURED.

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SECTION VII-SPILL OR LEAK PROCEDURES (CONTINUED)

WASTE DISPOSAL METHOD:

SMALL SPILL: DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
LARGE SPILL: DISPOSE OF IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION VIII-PROTECTIVE EQUIPMENT TO BE USED

RESPIRATORY PROTECTION: IF WORKPLACE EXPOSURE LIMIT(S) OF PRODUCT OR ANY COMPONENT IS EXCEEDED (SEE SECTION II), A NIOSH/MSHA APPROVED AIR SUPPLIED RESPIRATOR IS ADVISED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. OSHA REGULATIONS ALSO PERMIT OTHER NIOSH/MSHA RESPIRATORS (NEGATIVE PRESSURE TYPE) UNDER SPECIFIED CONDITIONS (SEE YOUR INDUSTRIAL HYGIENIST). ENGINEERING OR ADMINISTRATIVE CONTROLS SHOULD BE IMPLEMENTED TO REDUCE EXPOSURE.
VENTILATION: PROVIDE SUFFICIENT MECHANICAL (GENERAL AND/OR LOCAL EXHAUST) VENTILATION TO MAINTAIN EXPOSURE BELOW TLV(S).
PROTECTIVE GLOVES: WEAR RESISTANT GLOVES SUCH AS:, POLYVINYL ALCOHOL
EYE PROTECTION: CHEMICAL SPLASH GOGGLES IN COMPLIANCE WITH OSHA REGULATIONS ARE ADVISED; HOWEVER, OSHA REGULATIONS ALSO PERMIT OTHER TYPE SAFETY GLASSES. CONSULT YOUR SAFETY REPRESENTATIVE.
OTHER PROTECTIVE EQUIPMENT: TO PREVENT REPEATED OR PROLONGED SKIN CONTACT, WEAR IMPERVIOUS CLOTHING AND BOOTS.

SECTION IX-SPECIAL PRECAUTIONS OR OTHER COMMENTS

CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMPTIED.SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUES (VAPOR, LIQUID, AND/OR SOLID), ALL HAZARD PRECAUTIONS GIVEN IN THE DATA SHEET MUST BE OBSERVED.
THE INFORMATION ACCUMULATED HEREIN IS BELIEVED TO BE ACCURATE BUT IS NOT WARRANTED TO BE WHETHER ORIGINATING WITH THE COMPANY OR NOT. RECIPIENTS ARE ADVISED TO CONFIRM IN ADVANCE OF NEED THAT THE INFORMATION IS CURRENT, APPLICABLE, AND SUITABLE TO THEIR CIRCUMSTANCES.

LAST PAGE--SEE ATTACHMENT PAGE ENCLOSED--LAST PAGE

THIS MSDS COMPLIES WITH 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD)

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PRODUCT NAME: CUMENE
CAS NUMBER: 98 82 8

DATA SHEET NO: 0016041-004.002
PREPARED: 08/17/94
SUPERSEDES: 05/25/94
PRINT DATE: 08/19/94

SECTION I-PRODUCT IDENTIFICATION

GENERAL OR GENERIC ID: AROMATIC HYDROCARBON

SECTION II-COMPONENTS

IF PRESENT, IARC, NTP AND OSHA CARCINOGENS AND CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III SECTION 313 ARE IDENTIFIED IN THIS SECTION.

SEE DEFINITION PAGE FOR CLARIFICATION

INGREDIENT	PERCENT	NOTE
ISOPROPYLBENZENE	100	(1)
CAS #: 98-82-8 PEL: 50 PPM - SKIN	TLV: 50 PPM - SKIN	

(1): SKIN ABSORPTION MAY CONTRIBUTE TO TO THE OVERALL ABSORPTION OF THIS MATERIAL. APPROPRIATE MEASURES SHOULD BE TAKEN TO PREVENT ABSORPTION SO THAT THE TLV AND/OR PEL ARE NOT INVALIDATED. SEE SECTION V.
THIS CHEMICAL IS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF SARA TITLE III.

SECTION III-PHYSICAL DATA

PROPERTY	REFINEMENT		MEASUREMENT
BOILING POINT	FOR PRODUCT	XX	306.00 DEG F
		@	760.00 MMHG

CONTINUED ON PAGE: 2

SECTION III-PHYSICAL DATA (CONTINUED)

PROPERTY	REFINEMENT	MEASUREMENT
VAPOR PRESSURE	FOR PRODUCT	8.00 MMHG
	@	68.00 DEG F
	(	20.00 DEG C)
SPECIFIC VAPOR DENSITY	AIR = 1	4.14
SPECIFIC GRAVITY		.860
	@	68.00 DEG F
	(	20.00 DEG C)
PERCENT VOLATILES		100.00%
EVAPORATION RATE		SLOWER THAN ETHER

SECTION IV-FIRE AND EXPLOSION INFORMATION

FLASH POINT(TCC) 97.0 DEG F
(36.1 DEG C)
EXPLOSIVE LIMIT(PRODUCT) LOWER - .9%
EXTINGUISHING MEDIA: REGULAR FOAM OR CARBON DIOXIDE OR DRY CHEMICAL
HAZARDOUS DECOMPOSITION PRODUCTS: MAY FORM TOXIC MATERIALS:, CARBON DIOXIDE AND CARBON MONOXIDE, VARIOUS HYDROCARBONS, ETC.
FIREFIGHTING PROCEDURES: WEAR SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN THE POSITIVE PRESSURE DEMAND MODE WHEN FIGHTING FIRES.
SPECIAL FIRE & EXPLOSION HAZARDS: NEVER USE WELDING OR CUTTING TORCH ON OR NEAR DRUM (EVEN EMPTY) BECAUSE PRODUCT (EVEN JUST RESIDUE) CAN IGNITE EXPLOSIVELY.
ALL FIVE GALLON PAILS AND LARGER METAL CONTAINERS INCLUDING TANK CARS AND TANK TRUCKS SHOULD BE GROUNDED AND/OR BONDED WHEN MATERIAL IS TRANSFERRED.
VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL ALONG THE GROUND OR MAY BE MOVED BY VENTILATION AND IGNITED BY PILOT LIGHTS, OTHER FLAMES, SPARKS,

HEATERS, SMOKING, ELECTRIC MOTORS, STATIC DISCHARGE, OR OTHER IGNITION SOURCES AT LOCATIONS DISTANT FROM MATERIAL HANDLING POINT.
NFPA CODES: HEALTH- 2 FLAMMABILITY- 3 REACTIVITY- 0

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SECTION V-HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVEL	50	PPM - SKIN
THRESHOLD LIMIT VALUE	50	PPM - SKIN

EFFECTS OF ACUTE OVEREXPOSURE:

EYES - EXPOSURE TO LIQUID OR VAPOR CAUSES EYE IRRITATION. SYMPTOMS MAY INCLUDE STINGING, TEARING, REDNESS, AND SWELLING.
BREATHING - EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL AND RESPIRATORY IRRITATION, CENTRAL NERVOUS SYSTEM EFFECTS INCLUDING DIZZINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE AND POSSIBLE UNCONSCIOUSNESS, AND EVEN DEATH.
SWALLOWING - CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING, AND DIARRHEA. ASPIRATION OF MATERIAL INTO THE LUNGS CAN CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL.
SKIN - EXPOSURE MAY CAUSE MILD SKIN IRRITATION. PROLONGED OR REPEATED EXPOSURE MAY DRY THE SKIN. SYMPTOMS MAY INCLUDE REDNESS, BURNING, DRYING AND CRACKING, AND SKIN BURNS. PRE-EXISTING SKIN DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO THIS MATERIAL.

FIRST AID:

IF ON SKIN: THOROUGHLY WASH EXPOSED AREA WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING. LAUNDER CONTAMINATED CLOTHING BEFORE RE-USE. REMOVE CONTAMINATED SHOES PROMPTLY. DISCARD SHOES SATURATED WITH THIS PRODUCT.
IF IN EYES: FLUSH WITH LARGE AMOUNTS OF WATER, LIFTING UPPER AND LOWER LIDS OCCASIONALLY, GET MEDICAL ATTENTION.
IF SWALLOWED: DO NOT INDUCE VOMITING, KEEP PERSON WARM, QUIET, AND GET MEDICAL ATTENTION. ASPIRATION OF MATERIAL INTO THE LUNGS DUE TO VOMITING CAN CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL.
IF BREATHED: IF AFFECTED, REMOVE INDIVIDUAL TO FRESH AIR. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN. IF BREATHING HAS STOPPED GIVE ARTIFICIAL RESPIRATION. KEEP PERSON WARM, QUIET AND GET MEDICAL ATTENTION.

PRIMARY ROUTE(S) OF ENTRY:

INHALATION
SKIN ABSORPTION
SKIN CONTACT

CONTINUED ON PAGE: 4

SECTION V-HEALTH HAZARD DATA (CONTINUED)

EFFECTS OF CHRONIC OVEREXPOSURE:

A 14 WEEK VAPOR INHALATION EXPOSURE OF MALE AND FEMALE LABORATORY RATS TO CUMENE (ISOPROPYLBENZENE), CAS# 98-82-8, RESULTED IN AN INCREASED INCIDENCE OF CATARACTS IN BOTH SEXES AND A DECREASE IN MOTOR ACTIVITY IN ONLY MALES. THESE CHANGES IN THE EYE AND CENTRAL NERVOUS SYSTEM WERE OBSERVED IN THER ATS AT EXPOSURES ABOVE THE PEL (50 PPM). THE BIOLOGICAL SIGNIFICANCE OF THESE FINDINGS TO MAN IS UNKNOWN.
OVEREXPOSURE TO THIS MATERIAL (OR ITS COMPONENTS) HAS BEEN SUGGESTED AS A CAUSE OF THE FOLLOWING EFFECTS IN LABORATORY ANIMALS, AND MAY AGGRAVATE PRE-EXISTING DISORDERS OF THESE ORGANS IN HUMANS:, LIVER ABNORMALITIES, KIDNEY DAMAGE

SECTION VI-REACTIVITY DATA

HAZARDOUS POLYMERIZATION: CANNOT OCCUR
STABILITY: STABLE
INCOMPATIBILITY: AVOID CONTACT WITH:, STRONG OXIDIZING AGENTS

SECTION VII-SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

SMALL SPILL: ABSORB LIQUID ON VERMICULITE, FLOOR ABSORBENT, OR OTHER ABSORBENT MATERIAL AND TRANSFER TO HOOD.
LARGE SPILL: ELIMINATE ALL IGNITION SOURCES (FLARES, FLAMES INCLUDING PILOT LIGHTS, ELECTRICAL SPARKS). PERSONS NOT WEARING PROTECTIVE EQUIPMENT SHOULD BE EXCLUDED FROM AREA OF SPILL UNTIL CLEAN-UP HAS BEEN COMPLETED.

STOP SPILL AT SOURCE. PREVENT FROM ENTERING DRAINS, SEWERS, STREAMS OR OTHER BODIES OF WATER.PREVENT FROM SPREADING. IF RUNOFF OCCURS, NOTIFY AUTHORITIES AS REQUIRED. PUMP OR VACUUM TRANSFER SPILLED PRODUCT TO CLEAN CONTAINERS FOR RECOVERY. ABSORB UNRECOVERABLE PRODUCT.TRANSFER CONTAMINATED ABSORBENT, SOIL AND OTHER MATERIALS TO CONTAINERS FOR DISPOSAL.
PREVENT RUN-OFF TO SEWERS, STREAMS OR OTHER BODIES OF WATER. IF RUN-OFF

CONTINUED ON PAGE: 5

SECTION VII-SPILL OR LEAK PROCEDURES (CONTINUED)

OCCURS, NOTIFY PROPER AUTHORITIES AS REQUIRED, THAT A SPILL HAS OCCURED.

WASTE DISPOSAL METHOD:

SMALL SPILL: DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
LARGE SPILL: DISPOSE OF IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION VIII-PROTECTIVE EQUIPMENT TO BE USED

RESPIRATORY PROTECTION: IF WORKPLACE EXPOSURE LIMIT(S) OF PRODUCT OR ANY COMPONENT IS EXCEEDED (SEE SECTION II), A NIOSH/MSHA APPROVED AIR SUPPLIED RESPIRATOR IS ADVISED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. OSHA REGULATIONS ALSO PERMIT OTHER NIOSH/MSHA RESPIRATORS (NEGATIVE PRESSURE TYPE) UNDER SPECIFIED CONDITIONS (SEE YOUR INDUSTRIAL HYGIENIST). ENGINEERING OR ADMINISTRATIVE CONTROLS SHOULD BE IMPLEMENTED TO REDUCE EXPOSURE.
VENTILATION: PROVIDE SUFFICIENT MECHANICAL (GENERAL AND/OR LOCAL EXHAUST) VENTILATION TO MAINTAIN EXPOSURE BELOW TLV(S).
PROTECTIVE GLOVES: WEAR RESISTANT GLOVES SUCH AS:, POLYVINYL ALCOHOL
EYE PROTECTION: CHEMICAL SPLASH GOGGLES IN COMPLIANCE WITH OSHA REGULATIONS ARE ADVISED; HOWEVER, OSHA REGULATIONS ALSO PERMIT OTHER TYPE SAFETY GLASSES. CONSULT YOUR SAFETY REPRESENTATIVE.
OTHER PROTECTIVE EQUIPMENT: TO PREVENT REPEATED OR PROLONGED SKIN CONTACT, WEAR IMPERVIOUS CLOTHING AND BOOTS.

SECTION IX-SPECIAL PRECAUTIONS OR OTHER COMMENTS

CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMPTIED.SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUES (VAPOR, LIQUID, AND/OR SOLID), ALL HAZARD PRECAUTIONS GIVEN IN THE DATA SHEET MUST BE OBSERVED.
THE INFORMATION ACCUMULATED HEREIN IS BELIEVED TO BE ACCURATE BUT IS NOT WARRANTED TO BE WHETHER ORIGINATING WITH THE COMPANY OR NOT. RECIPIENTS ARE ADVISED TO CONFIRM IN ADVANCE OF NEED THAT THE INFORMATION IS

CONTINUED ON PAGE: 6

SECTION IX-SPECIAL PRECAUTIONS OR OTHER COMMENTS (CONTINUED)

CURRENT, APPLICABLE, AND SUITABLE TO THEIR CIRCUMSTANCES.

LAST PAGE--SEE ATTACHMENT PAGE ENCLOSED--LAST PAGE

THIS MSDS COMPLIES WITH 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD)

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PRODUCT NAME: CUMENE
CAS NUMBER: 98 82 8

DATA SHEET NO: 0016041-004.003
PREPARED: 11/14/94
SUPERSEDES: 08/17/94
PRINT DATE: 11/18/94

SECTION I-PRODUCT IDENTIFICATION

GENERAL OR GENERIC ID: AROMATIC HYDROCARBON

SECTION II-COMPONENTS

IF PRESENT, IARC, NTP AND OSHA CARCINOGENS AND CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III SECTION 313 ARE IDENTIFIED IN THIS SECTION.

SEE DEFINITION PAGE FOR CLARIFICATION

INGREDIENT	PERCENT	NOTE
ISOPROPYLBENZENE	100	(1)
CAS #: 98-82-8 PEL: 50 PPM - SKIN	TLV: 50 PPM - SKIN	

(1): SKIN ABSORPTION MAY CONTRIBUTE TO THE OVERALL ABSORPTION OF THIS MATERIAL. APPROPRIATE MEASURES SHOULD BE TAKEN TO PREVENT ABSORPTION SO THAT THE TLV AND/OR PEL ARE NOT INVALIDATED. SEE SECTION V.
THIS CHEMICAL IS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF SARA TITLE III.

SECTION III-PHYSICAL DATA

PROPERTY	REFINEMENT		MEASUREMENT
BOILING POINT	FOR PRODUCT	XX	306.00 DEG F
		@	760.00 MMHG

CONTINUED ON PAGE: 2

SECTION III-PHYSICAL DATA (CONTINUED)

PROPERTY	REFINEMENT		MEASUREMENT
VAPOR PRESSURE	FOR PRODUCT		8.00 MMHG
		@	68.00 DEG F
		(	20.00 DEG C)
SPECIFIC VAPOR DENSITY	AIR = 1		4.14
SPECIFIC GRAVITY			.860
		@	68.00 DEG F
		(	20.00 DEG C)
PERCENT VOLATILES			100.00%
EVAPORATION RATE			SLOWER THAN ETHER

SECTION IV-FIRE AND EXPLOSION INFORMATION

FLASH POINT(TCC) 97.0 DEG F
(36.1 DEG C)
EXPLOSIVE LIMIT(PRODUCT) LOWER - .9%
EXTINGUISHING MEDIA: REGULAR FOAM OR CARBON DIOXIDE OR DRY CHEMICAL
HAZARDOUS DECOMPOSITION PRODUCTS: MAY FORM TOXIC MATERIALS:, CARBON DIOXIDE AND CARBON MONOXIDE, VARIOUS HYDROCARBONS, ETC.
FIREFIGHTING PROCEDURES: WEAR SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN THE POSITIVE PRESSURE DEMAND MODE WHEN FIGHTING FIRES.
SPECIAL FIRE & EXPLOSION HAZARDS: NEVER USE WELDING OR CUTTING TORCH ON OR NEAR DRUM (EVEN EMPTY) BECAUSE PRODUCT (EVEN JUST RESIDUE) CAN IGNITE EXPLOSIVELY.
ALL FIVE GALLON PAILS AND LARGER METAL CONTAINERS INCLUDING TANK CARS AND TANK TRUCKS SHOULD BE GROUNDED AND/OR BONDED WHEN MATERIAL IS TRANSFERRED.
VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL ALONG THE GROUND OR MAY BE MOVED BY VENTILATION AND IGNITED BY PILOT LIGHTS, OTHER FLAMES, SPARKS,

HEATERS, SMOKING, ELECTRIC MOTORS, STATIC DISCHARGE, OR OTHER IGNITION SOURCES AT LOCATIONS DISTANT FROM MATERIAL HANDLING POINT.
NFPA CODES: HEALTH- 2 FLAMMABILITY- 3 REACTIVITY- 0

CONTINUED ON PAGE: 3

SECTION V-HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVEL	50	PPM - SKIN
THRESHOLD LIMIT VALUE	50	PPM - SKIN

EFFECTS OF ACUTE OVEREXPOSURE:

EYES - EXPOSURE CAUSES EYE IRRITATION. SYMPTOMS MAY INCLUDE STINGING, TEARING, REDNESS, AND SWELLING.
SWALLOWING - CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING, AND DIARRHEA. ASPIRATION OF MATERIAL INTO THE LUNGS CAN CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL.
SKIN - EXPOSURE MAY CAUSE MILD SKIN IRRITATION. PROLONGED OR REPEATED EXPOSURE MAY DRY THE SKIN. SYMPTOMS MAY INCLUDE REDNESS, BURNING, DRYING AND CRACKING, AND SKIN BURNS. PRE-EXISTING SKIN DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO THIS MATERIAL.
BREATHING - EXPOSURE TO VAPOR OR MIST IS POSSIBLE.
SHORT-TERM INHALATION TOXICITY IS LOW. BREATHING SMALL AMOUNTS DURING NORMAL HANDLING IS NOT LIKELY TO CAUSE HARMFUL EFFECTS; BREATHING LARGE AMOUNTS MAY BE HARMFUL.
SYMPTOMS MAY INCLUDE:
-IRRITATION (NOSE, THROAT, RESPIRATORY TRACT)- PRE-EXISTING LUNG DISORDERS, E.G. ASTHMA-LIKE CONDITIONS, MAY BE AGGRAVATED BY EXPOSURE TO THIS MATERIAL.
-CENTRAL NERVOUS SYSTEM DEPRESSION (DIZZINESS, DROWSINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE, UNCONSCIOUSNESS)-
-AND DEATH

FIRST AID:

IF ON SKIN: THOROUGHLY WASH EXPOSED AREA WITH SOAP AND WATER: REMOVE CONTAMINATED CLOTHING. LAUNDER CONTAMINATED CLOTHING BEFORE RE-USE. REMOVE CONTAMINATED SHOES PROMPTLY. DISCARD SHOES SATURATED WITH THIS PRODUCT.
IF IN EYES: FLUSH WITH LARGE AMOUNTS OF WATER, LIFTING UPPER AND LOWER LIDS OCCASIONALLY, GET MEDICAL ATTENTION.
IF SWALLOWED: DO NOT INDUCE VOMITING, KEEP PERSON WARM, QUIET, AND GET MEDICAL ATTENTION. ASPIRATION OF MATERIAL INTO THE LUNGS DUE TO VOMITING CAN CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL.
IF BREATHED: IF AFFECTED, REMOVE INDIVIDUAL TO FRESH AIR. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN. IF BREATHING HAS STOPPED GIVE ARTIFICIAL RESPIRATION. KEEP PERSON WARM, QUIET AND GET MEDICAL ATTENTION.

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SECTION V-HEALTH HAZARD DATA (CONTINUED)

PRIMARY ROUTE(S) OF ENTRY:

INHALATION
SKIN ABSORPTION
SKIN CONTACT

EFFECTS OF CHRONIC OVEREXPOSURE:

A 14 WEEK VAPOR INHALATION EXPOSURE OF MALE AND FEMALE LABORATORY RATS TO CUMENE (ISOPROPYLBENZENE), CAS# 98-82-8, RESULTED IN AN INCREASED INCIDENCE OF CATARACTS IN BOTH SEXES AND A DECREASE IN MOTOR ACTIVITY IN ONLY MALES. THESE CHANGES IN THE EYE AND CENTRAL NERVOUS SYSTEM WERE OBSERVED IN THER ATS AT EXPOSURES ABOVE THE PEL (50 PPM). THE BIOLOGICAL SIGNIFICANCE OF THESE FINDINGS TO MAN IS UNKNOWN.
OVEREXPOSURE TO THIS MATERIAL (OR ITS COMPONENTS) HAS BEEN SUGGESTED AS A CAUSE OF THE FOLLOWING EFFECTS IN LABORATORY ANIMALS, AND MAY AGGRAVATE PRE-EXISTING DISORDERS OF THESE ORGANS IN HUMANS:, LIVER ABNORMALITIES, KIDNEY DAMAGE

SECTION VI-REACTIVITY DATA

HAZARDOUS POLYMERIZATION: CANNOT OCCUR
STABILITY: STABLE
INCOMPATIBILITY: AVOID CONTACT WITH:, STRONG OXIDIZING AGENTS

SECTION VII-SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

SMALL SPILL: ABSORB LIQUID ON VERMICULITE, FLOOR ABSORBENT, OR OTHER ABSORBENT MATERIAL AND TRANSFER TO HOOD.

CONTINUED ON PAGE: 5

SECTION VII-SPILL OR LEAK PROCEDURES (CONTINUED)

LARGE SPILL: ELIMINATE ALL IGNITION SOURCES (FLARES, FLAMES INCLUDING PILOT LIGHTS, ELECTRICAL SPARKS). PERSONS NOT WEARING PROTECTIVE EQUIPMENT SHOULD BE EXCLUDED FROM AREA OF SPILL UNTIL CLEAN-UP HAS BEEN COMPLETED. STOP SPILL AT SOURCE. PREVENT FROM ENTERING DRAINS, SEWERS, STREAMS OR OTHER BODIES OF WATER.PREVENT FROM SPREADING. IF RUNOFF OCCURS, NOTIFY AUTHORITIES AS REQUIRED. PUMP OR VACUUM TRANSFER SPILLED PRODUCT TO CLEAN CONTAINERS FOR RECOVERY. ABSORB UNRECOVERABLE PRODUCT.TRANSFER CONTAMINATED ABSORBENT, SOIL AND OTHER MATERIALS TO CONTAINERS FOR DISPOSAL.
PREVENT RUN-OFF TO SEWERS, STREAMS OR OTHER BODIES OF WATER. IF RUN-OFF OCCURS, NOTIFY PROPER AUTHORITIES AS REQUIRED, THAT A SPILL HAS OCCURED.

WASTE DISPOSAL METHOD:

SMALL SPILL: DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
LARGE SPILL: DISPOSE OF IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION VIII-PROTECTIVE EQUIPMENT TO BE USED

RESPIRATORY PROTECTION: IF WORKPLACE EXPOSURE LIMIT(S) OF PRODUCT OR ANY COMPONENT IS EXCEEDED (SEE SECTION II), A NIOSH/MSHA APPROVED AIR SUPPLIED RESPIRATOR IS ADVISED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. OSHA REGULATIONS ALSO PERMIT OTHER NIOSH/MSHA RESPIRATORS (NEGATIVE PRESSURE TYPE) UNDER SPECIFIED CONDITIONS (SEE YOUR INDUSTRIAL HYGIENIST). ENGINEERING OR ADMINISTRATIVE CONTROLS SHOULD BE IMPLEMENTED TO REDUCE EXPOSURE.
VENTILATION: PROVIDE SUFFICIENT MECHANICAL (GENERAL AND/OR LOCAL EXHAUST) VENTILATION TO MAINTAIN EXPOSURE BELOW TLV(S).
PROTECTIVE GLOVES: WEAR RESISTANT GLOVES SUCH AS:, POLYVINYL ALCOHOL
EYE PROTECTION: CHEMICAL SPLASH GOGGLES IN COMPLIANCE WITH OSHA REGULATIONS ARE ADVISED; HOWEVER, OSHA REGULATIONS ALSO PERMIT OTHER TYPE SAFETY GLASSES. CONSULT YOUR SAFETY REPRESENTATIVE.
OTHER PROTECTIVE EQUIPMENT: TO PREVENT REPEATED OR PROLONGED SKIN CONTACT, WEAR IMPERVIOUS CLOTHING AND BOOTS.

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SECTION IX-SPECIAL PRECAUTIONS OR OTHER COMMENTS

CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMPTIED.SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUES (VAPOR, LIQUID, AND/OR SOLID), ALL HAZARD PRECAUTIONS GIVEN IN THE DATA SHEET MUST BE OBSERVED.
THE INFORMATION ACCUMULATED HEREIN IS BELIEVED TO BE ACCURATE BUT IS NOT WARRANTED TO BE WHETHER ORIGINATING WITH THE COMPANY OR NOT. RECIPIENTS ARE ADVISED TO CONFIRM IN ADVANCE OF NEED THAT THE INFORMATION IS CURRENT, APPLICABLE, AND SUITABLE TO THEIR CIRCUMSTANCES.

LAST PAGE--SEE ATTACHMENT PAGE ENCLOSED--LAST PAGE

THIS MSDS COMPLIES WITH 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD)

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PRODUCT NAME: CUMENE
CAS NUMBER: 98 82 8

DATA SHEET NO: 0016041-004.004
PREPARED: 11/21/94
SUPERSEDES: 11/14/94
PRINT DATE: 11/23/94

SECTION I-PRODUCT IDENTIFICATION

GENERAL OR GENERIC ID: AROMATIC HYDROCARBON

SECTION II-COMPONENTS

IF PRESENT, IARC, NTP AND OSHA CARCINOGENS AND CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III SECTION 313 ARE IDENTIFIED IN THIS SECTION.

SEE DEFINITION PAGE FOR CLARIFICATION

INGREDIENT	PERCENT	NOTE
ISOPROPYLBENZENE	100	(1)
CAS #: 98-82-8 PEL: 50 PPM - SKIN	TLV: 50 PPM - SKIN	

(1): SKIN ABSORPTION MAY CONTRIBUTE TO THE OVERALL ABSORPTION OF THIS MATERIAL. APPROPRIATE MEASURES SHOULD BE TAKEN TO PREVENT ABSORPTION SO THAT THE TLV AND/OR PEL ARE NOT INVALIDATED. SEE SECTION V.
THIS CHEMICAL IS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF SARA TITLE III.

SECTION III-PHYSICAL DATA

PROPERTY	REFINEMENT		MEASUREMENT
BOILING POINT	FOR PRODUCT	XX	306.00 DEG F
		@	760.00 MMHG

CONTINUED ON PAGE: 2

SECTION III-PHYSICAL DATA (CONTINUED)

PROPERTY	REFINEMENT	MEASUREMENT
VAPOR PRESSURE	FOR PRODUCT	8.00 MMHG
	@	68.00 DEG F
	(	20.00 DEG C)
SPECIFIC VAPOR DENSITY	AIR = 1	4.14
SPECIFIC GRAVITY		.860
	@	68.00 DEG F
	(	20.00 DEG C)
PERCENT VOLATILES		100.00%
EVAPORATION RATE		SLOWER THAN ETHER

SECTION IV-FIRE AND EXPLOSION INFORMATION

FLASH POINT(TCC) 97.0 DEG F
(36.1 DEG C)
EXPLOSIVE LIMIT(PRODUCT) LOWER - .9%
EXTINGUISHING MEDIA: REGULAR FOAM OR CARBON DIOXIDE OR DRY CHEMICAL
HAZARDOUS DECOMPOSITION PRODUCTS: MAY FORM TOXIC MATERIALS:, CARBON DIOXIDE AND CARBON MONOXIDE, VARIOUS HYDROCARBONS, ETC.
FIREFIGHTING PROCEDURES: WEAR SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN THE POSITIVE PRESSURE DEMAND MODE WHEN FIGHTING FIRES.
SPECIAL FIRE & EXPLOSION HAZARDS: NEVER USE WELDING OR CUTTING TORCH ON OR NEAR DRUM (EVEN EMPTY) BECAUSE PRODUCT (EVEN JUST RESIDUE) CAN IGNITE EXPLOSIVELY.
ALL FIVE GALLON PAILS AND LARGER METAL CONTAINERS INCLUDING TANK CARS AND TANK TRUCKS SHOULD BE GROUNDED AND/OR BONDED WHEN MATERIAL IS TRANSFERRED. VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL ALONG THE GROUND OR MAY BE MOVED BY VENTILATION AND IGNITED BY PILOT LIGHTS, OTHER FLAMES, SPARKS,

HEATERS, SMOKING, ELECTRIC MOTORS, STATIC DISCHARGE, OR OTHER IGNITION SOURCES AT LOCATIONS DISTANT FROM MATERIAL HANDLING POINT.
NFPA CODES: HEALTH- 2 FLAMMABILITY- 3 REACTIVITY- 0

CONTINUED ON PAGE: 3

SECTION V-HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVEL	50	PPM - SKIN
THRESHOLD LIMIT VALUE	50	PPM - SKIN

EFFECTS OF ACUTE OVEREXPOSURE:

EYES - EXPOSURE CAUSES EYE IRRITATION. SYMPTOMS MAY INCLUDE STINGING, TEARING, REDNESS, AND SWELLING.
SKIN - EXPOSURE MAY CAUSE MILD SKIN IRRITATION. PROLONGED OR REPEATED EXPOSURE MAY DRY THE SKIN. SYMPTOMS MAY INCLUDE REDNESS, BURNING, DRYING AND CRACKING, AND SKIN BURNS. PRE-EXISTING SKIN DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO THIS MATERIAL.
BREATHING - EXPOSURE TO VAPOR OR MIST IS POSSIBLE.
SHORT-TERM INHALATION TOXICITY IS LOW. BREATHING SMALL AMOUNTS DURING NORMAL HANDLING IS NOT LIKELY TO CAUSE HARMFUL EFFECTS; BREATHING LARGE AMOUNTS MAY BE HARMFUL.
SYMPTOMS MAY INCLUDE:
-IRRITATION (NOSE, THROAT, RESPIRATORY TRACT)- PRE-EXISTING LUNG DISORDERS, E.G. ASTHMA-LIKE CONDITIONS, MAY BE AGGRAVATED BY EXPOSURE TO THIS MATERIAL.
-CENTRAL NERVOUS SYSTEM DEPRESSION (DIZZINESS, DROWSINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE, UNCONSCIOUSNESS)-
-AND DEATH
SWALLOWING - SINGLE DOSE ORAL TOXICITY IS LOW. SWALLOWING SMALL AMOUNTS DURING NORMAL HANDLING IS NOT LIKELY TO CAUSE HARMFUL EFFECTS; SWALLOWING LARGE AMOUNTS MAY BE HARMFUL.
SYMPTOMS MAY INCLUDE:
-GASTROINTESTINAL IRRITATION (NAUSEA, VOMITING, DIARRHEA)-
THIS MATERIAL CAN ENTER THE LUNGS DURING SWALLOWING OR VOMITING AND CAUSE LUNG INFLAMMATION AND/OR DAMAGE.

FIRST AID:

IF ON SKIN: THOROUGHLY WASH EXPOSED AREA WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING. LAUNDER CONTAMINATED CLOTHING BEFORE RE-USE. REMOVE CONTAMINATED SHOES PROMPTLY. DISCARD SHOES SATURATED WITH THIS PRODUCT.
IF IN EYES: FLUSH WITH LARGE AMOUNTS OF WATER, LIFTING UPPER AND LOWER LIDS OCCASIONALLY, GET MEDICAL ATTENTION.
IF SWALLOWED: DO NOT INDUCE VOMITING, KEEP PERSON WARM, QUIET, AND GET MEDICAL ATTENTION. ASPIRATION OF MATERIAL INTO THE LUNGS DUE TO VOMITING CAN CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL.

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SECTION V-HEALTH HAZARD DATA (CONTINUED)

IF BREATHED: IF AFFECTED, REMOVE INDIVIDUAL TO FRESH AIR. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN. IF BREATHING HAS STOPPED GIVE ARTIFICIAL RESPIRATION. KEEP PERSON WARM, QUIET AND GET MEDICAL ATTENTION.

PRIMARY ROUTE(S) OF ENTRY:

INHALATION
SKIN ABSORPTION
SKIN CONTACT

EFFECTS OF CHRONIC OVEREXPOSURE:

A 14 WEEK VAPOR INHALATION EXPOSURE OF MALE AND FEMALE LABORATORY RATS TO CUMENE (ISOPROPYLBENZENE), CAS# 98-82-8, RESULTED IN AN INCREASED INCIDENCE OF CATARACTS IN BOTH SEXES AND A DECREASE IN MOTOR ACTIVITY IN ONLY MALES. THESE CHANGES IN THE EYE AND CENTRAL NERVOUS SYSTEM WERE OBSERVED IN THER ATS AT EXPOSURES ABOVE THE PEL (50 PPM). THE BIOLOGICAL SIGNIFICANCE OF THESE FINDINGS TO MAN IS UNKNOWN.
OVEREXPOSURE TO THIS MATERIAL (OR ITS COMPONENTS) HAS BEEN SUGGESTED AS A CAUSE OF THE FOLLOWING EFFECTS IN LABORATORY ANIMALS, AND MAY AGGRAVATE PRE-EXISTING DISORDERS OF THESE ORGANS IN HUMANS:, LIVER ABNORMALITIES, KIDNEY DAMAGE

SECTION VI-REACTIVITY DATA

HAZARDOUS POLYMERIZATION: CANNOT OCCUR
STABILITY: STABLE

INCOMPATIBILITY: AVOID CONTACT WITH:, STRONG OXIDIZING AGENTS

SECTION VII-SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

SMALL SPILL: ABSORB LIQUID ON VERMICULITE, FLOOR ABSORBENT, OR OTHER ABSORBENT MATERIAL AND TRANSFER TO HOOD.

CONTINUED ON PAGE: 5

SECTION VII-SPILL OR LEAK PROCEDURES (CONTINUED)

LARGE SPILL: ELIMINATE ALL IGNITION SOURCES (FLARES, FLAMES INCLUDING PILOT LIGHTS, ELECTRICAL SPARKS). PERSONS NOT WEARING PROTECTIVE EQUIPMENT SHOULD BE EXCLUDED FROM AREA OF SPILL UNTIL CLEAN-UP HAS BEEN COMPLETED. STOP SPILL AT SOURCE. PREVENT FROM ENTERING DRAINS, SEWERS, STREAMS OR OTHER BODIES OF WATER.PREVENT FROM SPREADING. IF RUNOFF OCCURS, NOTIFY AUTHORITIES AS REQUIRED. PUMP OR VACUUM TRANSFER SPILLED PRODUCT TO CLEAN CONTAINERS FOR RECOVERY. ABSORB UNRECOVERABLE PRODUCT.TRANSFER CONTAMINATED ABSORBENT, SOIL AND OTHER MATERIALS TO CONTAINERS FOR DISPOSAL.
PREVENT RUN-OFF TO SEWERS, STREAMS OR OTHER BODIES OF WATER. IF RUN-OFF OCCURS, NOTIFY PROPER AUTHORITIES AS REQUIRED, THAT A SPILL HAS OCCURED.

WASTE DISPOSAL METHOD:

SMALL SPILL: DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
LARGE SPILL: DISPOSE OF IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION VIII-PROTECTIVE EQUIPMENT TO BE USED

RESPIRATORY PROTECTION: IF WORKPLACE EXPOSURE LIMIT(S) OF PRODUCT OR ANY COMPONENT IS EXCEEDED (SEE SECTION II), A NIOSH/MSHA APPROVED AIR SUPPLIED RESPIRATOR IS ADVISED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. OSHA REGULATIONS ALSO PERMIT OTHER NIOSH/MSHA RESPIRATORS (NEGATIVE PRESSURE TYPE) UNDER SPECIFIED CONDITIONS (SEE YOUR INDUSTRIAL HYGIENIST). ENGINEERING OR ADMINISTRATIVE CONTROLS SHOULD BE IMPLEMENTED TO REDUCE EXPOSURE.
VENTILATION: PROVIDE SUFFICIENT MECHANICAL (GENERAL AND/OR LOCAL EXHAUST) VENTILATION TO MAINTAIN EXPOSURE BELOW TLV(S).
PROTECTIVE GLOVES: WEAR RESISTANT GLOVES SUCH AS:, POLYVINYL ALCOHOL
EYE PROTECTION: CHEMICAL SPLASH GOGGLES IN COMPLIANCE WITH OSHA REGULATIONS ARE ADVISED; HOWEVER, OSHA REGULATIONS ALSO PERMIT OTHER TYPE SAFETY GLASSES. CONSULT YOUR SAFETY REPRESENTATIVE.
OTHER PROTECTIVE EQUIPMENT: TO PREVENT REPEATED OR PROLONGED SKIN CONTACT, WEAR IMPERVIOUS CLOTHING AND BOOTS.

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SECTION IX-SPECIAL PRECAUTIONS OR OTHER COMMENTS

CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMPTIED.SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUES (VAPOR, LIQUID, AND/OR SOLID), ALL HAZARD PRECAUTIONS GIVEN IN THE DATA SHEET MUST BE OBSERVED.
THE INFORMATION ACCUMULATED HEREIN IS BELIEVED TO BE ACCURATE BUT IS NOT WARRANTED TO BE WHETHER ORIGINATING WITH THE COMPANY OR NOT. RECIPIENTS ARE ADVISED TO CONFIRM IN ADVANCE OF NEED THAT THE INFORMATION IS CURRENT, APPLICABLE, AND SUITABLE TO THEIR CIRCUMSTANCES.

LAST PAGE--SEE ATTACHMENT PAGE ENCLOSED--LAST PAGE

THIS MSDS COMPLIES WITH 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD)

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PRODUCT NAME: CUMENE
CAS NUMBER: 98 82 8

DATA SHEET NO: 0016041-004.005
PREPARED: 01/17/95
SUPERSEDES: 11/21/94
PRINT DATE: 01/20/95

SECTION I-PRODUCT IDENTIFICATION

GENERAL OR GENERIC ID: AROMATIC HYDROCARBON

SECTION II-COMPONENTS

IF PRESENT, IARC, NTP AND OSHA CARCINOGENS AND CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III SECTION 313 ARE IDENTIFIED IN THIS SECTION.

SEE DEFINITION PAGE FOR CLARIFICATION

INGREDIENT	PERCENT	NOTE
ISOPROPYLBENZENE	100	(1)
CAS #: 98-82-8 PEL: 50 PPM - SKIN	TLV: 50 PPM - SKIN	

(1): SKIN ABSORPTION MAY CONTRIBUTE TO THE OVERALL ABSORPTION OF THIS MATERIAL. APPROPRIATE MEASURES SHOULD BE TAKEN TO PREVENT ABSORPTION SO THAT THE TLV AND/OR PEL ARE NOT INVALIDATED. SEE SECTION V.
THIS CHEMICAL IS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF SARA TITLE III.

SECTION III-PHYSICAL DATA

PROPERTY	REFINEMENT		MEASUREMENT
BOILING POINT	FOR PRODUCT	XX	306.00 DEG F
		@	760.00 MMHG

CONTINUED ON PAGE: 2

SECTION III-PHYSICAL DATA (CONTINUED)

PROPERTY	REFINEMENT	MEASUREMENT
VAPOR PRESSURE	FOR PRODUCT	8.00 MMHG
		@ 68.00 DEG F
		(20.00 DEG C)
SPECIFIC VAPOR DENSITY	AIR = 1	4.14
SPECIFIC GRAVITY		.860
		@ 68.00 DEG F
		(20.00 DEG C)
PERCENT VOLATILES		100.00%
EVAPORATION RATE		SLOWER THAN ETHER

SECTION IV-FIRE AND EXPLOSION INFORMATION

FLASH POINT(TCC) 97.0 DEG F
(36.1 DEG C)
EXPLOSIVE LIMIT(PRODUCT) LOWER - .9%
EXTINGUISHING MEDIA: REGULAR FOAM OR CARBON DIOXIDE OR DRY CHEMICAL
HAZARDOUS DECOMPOSITION PRODUCTS: MAY FORM TOXIC MATERIALS:, CARBON DIOXIDE AND CARBON MONOXIDE, VARIOUS HYDROCARBONS, ETC.
FIREFIGHTING PROCEDURES: WEAR SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN THE POSITIVE PRESSURE DEMAND MODE WHEN FIGHTING FIRES.
SPECIAL FIRE & EXPLOSION HAZARDS: NEVER USE WELDING OR CUTTING TORCH ON OR NEAR DRUM (EVEN EMPTY) BECAUSE PRODUCT (EVEN JUST RESIDUE) CAN IGNITE EXPLOSIVELY.
ALL FIVE GALLON PAILS AND LARGER METAL CONTAINERS INCLUDING TANK CARS AND TANK TRUCKS SHOULD BE GROUNDED AND/OR BONDED WHEN MATERIAL IS TRANSFERRED.
VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL ALONG THE GROUND OR MAY BE MOVED BY VENTILATION AND IGNITED BY PILOT LIGHTS, OTHER FLAMES, SPARKS,

HEATERS, SMOKING, ELECTRIC MOTORS, STATIC DISCHARGE, OR OTHER IGNITION SOURCES AT LOCATIONS DISTANT FROM MATERIAL HANDLING POINT.
NFPA CODES: HEALTH- 2 FLAMMABILITY- 3 REACTIVITY- 0

CONTINUED ON PAGE: 3

SECTION V-HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVEL	50	PPM - SKIN
THRESHOLD LIMIT VALUE	50	PPM - SKIN

EFFECTS OF ACUTE OVEREXPOSURE:

EYES - EXPOSURE CAUSES EYE IRRITATION. SYMPTOMS MAY INCLUDE STINGING, TEARING, REDNESS, AND SWELLING.
SKIN - EXPOSURE MAY CAUSE MILD SKIN IRRITATION. PROLONGED OR REPEATED EXPOSURE MAY DRY THE SKIN. SYMPTOMS MAY INCLUDE REDNESS, BURNING, DRYING AND CRACKING, AND SKIN BURNS. PRE-EXISTING SKIN DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO THIS MATERIAL.
BREATHING - EXPOSURE TO VAPOR OR MIST IS POSSIBLE.
SHORT-TERM INHALATION TOXICITY IS LOW. BREATHING SMALL AMOUNTS DURING NORMAL HANDLING IS NOT LIKELY TO CAUSE HARMFUL EFFECTS; BREATHING LARGE AMOUNTS MAY BE HARMFUL.
SYMPTOMS MAY INCLUDE:
-IRRITATION (NOSE, THROAT, RESPIRATORY TRACT)- PRE-EXISTING LUNG DISORDERS, E.G. ASTHMA-LIKE CONDITIONS, MAY BE AGGRAVATED BY EXPOSURE TO THIS MATERIAL.
-CENTRAL NERVOUS SYSTEM DEPRESSION (DIZZINESS, DROWSINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE, UNCONSCIOUSNESS)-
-AND DEATH
SWALLOWING - SINGLE DOSE ORAL TOXICITY IS LOW. SWALLOWING SMALL AMOUNTS DURING NORMAL HANDLING IS NOT LIKELY TO CAUSE HARMFUL EFFECTS; SWALLOWING LARGE AMOUNTS MAY BE HARMFUL.
SYMPTOMS MAY INCLUDE:
-GASTROINTESTINAL IRRITATION (NAUSEA, VOMITING, DIARRHEA)-
THIS MATERIAL CAN ENTER THE LUNGS DURING SWALLOWING OR VOMITING AND CAUSE LUNG INFLAMMATION AND/OR DAMAGE.

FIRST AID:

IF ON SKIN: REMOVE CONTAMINATED CLOTHING. WASH EXPOSED AREA WITH SOAP AND WATER. IF SYMPTOMS PERSIST, SEEK MEDICAL ATTENTION. LAUNDER CLOTHING BEFORE REUSE.
IF IN EYES: IF SYMPTOMS DEVELOP, IMMEDIATELY MOVE INDIVIDUAL AWAY FROM EXPOSURE AND INTO FRESH AIR. FLUSH EYES GENTLY WITH WATER FOR AT LEAST 15 MINUTES WHILE HOLDING EYELIDS APART; SEEK IMMEDIATE MEDICAL ATTENTION.
IF SWALLOWED: DO NOT INDUCE VOMITING, KEEP PERSON WARM, QUIET, AND GET MEDICAL ATTENTION. ASPIRATION OF MATERIAL INTO THE LUNGS DUE TO VOMITING CAN CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL.

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SECTION V-HEALTH HAZARD DATA (CONTINUED)

IF BREATHED: IF SYMPTOMS DEVELOP, IMMEDIATELY MOVE INDIVIDUAL AWAY FROM EXPOSURE AND INTO FRESH AIR. SEEK IMMEDIATE MEDICAL ATTENTION; KEEP PERSON WARM AND QUIET. IF PERSON IS NOT BREATHING, BEGIN ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN.

PRIMARY ROUTE(S) OF ENTRY:

INHALATION
SKIN ABSORPTION
SKIN CONTACT

EFFECTS OF CHRONIC OVEREXPOSURE:

A 14 WEEK VAPOR INHALATION EXPOSURE OF MALE AND FEMALE LABORATORY RATS TO CUMENE (ISOPROPYLBENZENE), CAS# 98-82-8, RESULTED IN AN INCREASED INCIDENCE OF CATARACTS IN BOTH SEXES AND A DECREASE IN MOTOR ACTIVITY IN ONLY MALES. THESE CHANGES IN THE EYE AND CENTRAL NERVOUS SYSTEM WERE OBSERVED IN THER ATS AT EXPOSURES ABOVE THE PEL (50 PPM). THE BIOLOGICAL SIGNIFICANCE OF THESE FINDINGS TO MAN IS UNKNOWN.
OVEREXPOSURE TO THIS MATERIAL (OR ITS COMPONENTS) HAS BEEN SUGGESTED AS A CAUSE OF THE FOLLOWING EFFECTS IN LABORATORY ANIMALS, AND MAY AGGRAVATE PRE-EXISTING DISORDERS OF THESE ORGANS IN HUMANS:, LIVER ABNORMALITIES, KIDNEY DAMAGE

SECTION VI-REACTIVITY DATA

HAZARDOUS POLYMERIZATION: CANNOT OCCUR

STABILITY: STABLE
INCOMPATIBILITY: AVOID CONTACT WITH:, STRONG OXIDIZING AGENTS

SECTION VII-SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

SMALL SPILL: ABSORB LIQUID ON VERMICULITE, FLOOR ABSORBENT, OR OTHER ABSORBENT

CONTINUED ON PAGE: 5

SECTION VII-SPILL OR LEAK PROCEDURES (CONTINUED)

MATERIAL AND TRANSFER TO HOOD.
LARGE SPILL: ELIMINATE ALL IGNITION SOURCES (FLARES, FLAMES INCLUDING PILOT LIGHTS, ELECTRICAL SPARKS). PERSONS NOT WEARING PROTECTIVE EQUIPMENT SHOULD BE EXCLUDED FROM AREA OF SPILL UNTIL CLEAN-UP HAS BEEN COMPLETED. STOP SPILL AT SOURCE. PREVENT FROM ENTERING DRAINS, SEWERS, STREAMS OR OTHER BODIES OF WATER.PREVENT FROM SPREADING. IF RUNOFF OCCURS, NOTIFY AUTHORITIES AS REQUIRED. PUMP OR VACUUM TRANSFER SPILLED PRODUCT TO CLEAN CONTAINERS FOR RECOVERY. ABSORB UNRECOVERABLE PRODUCT.TRANSFER CONTAMINATED ABSORBENT, SOIL AND OTHER MATERIALS TO CONTAINERS FOR DISPOSAL.
PREVENT RUN-OFF TO SEWERS, STREAMS OR OTHER BODIES OF WATER. IF RUN-OFF OCCURS, NOTIFY PROPER AUTHORITIES AS REQUIRED, THAT A SPILL HAS OCCURED.

WASTE DISPOSAL METHOD:
SMALL SPILL: DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
LARGE SPILL: DISPOSE OF IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION VIII-PROTECTIVE EQUIPMENT TO BE USED

RESPIRATORY PROTECTION: IF WORKPLACE EXPOSURE LIMIT(S) OF PRODUCT OR ANY COMPONENT IS EXCEEDED (SEE SECTION II), A NIOSH/MSHA APPROVED AIR SUPPLIED RESPIRATOR IS ADVISED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. OSHA REGULATIONS ALSO PERMIT OTHER NIOSH/MSHA RESPIRATORS (NEGATIVE PRESSURE TYPE) UNDER SPECIFIED CONDITIONS (SEE YOUR INDUSTRIAL HYGIENIST). ENGINEERING OR ADMINISTRATIVE CONTROLS SHOULD BE IMPLEMENTED TO REDUCE EXPOSURE.
VENTILATION: PROVIDE SUFFICIENT MECHANICAL (GENERAL AND/OR LOCAL EXHAUST) VENTILATION TO MAINTAIN EXPOSURE BELOW TLV(S).
PROTECTIVE GLOVES: WEAR RESISTANT GLOVES SUCH AS:, POLYVINYL ALCOHOL
EYE PROTECTION: CHEMICAL SPLASH GOGGLES IN COMPLIANCE WITH OSHA REGULATIONS ARE ADVISED; HOWEVER, OSHA REGULATIONS ALSO PERMIT OTHER TYPE SAFETY GLASSES. CONSULT YOUR SAFETY REPRESENTATIVE.
OTHER PROTECTIVE EQUIPMENT: TO PREVENT REPEATED OR PROLONGED SKIN CONTACT, WEAR IMPERVIOUS CLOTHING AND BOOTS.

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SECTION IX-SPECIAL PRECAUTIONS OR OTHER COMMENTS

CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMPTIED.SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUES (VAPOR, LIQUID, AND/OR SOLID), ALL HAZARD PRECAUTIONS GIVEN IN THE DATA SHEET MUST BE OBSERVED.
THE INFORMATION ACCUMULATED HEREIN IS BELIEVED TO BE ACCURATE BUT IS NOT WARRANTED TO BE WHETHER ORIGINATING WITH THE COMPANY OR NOT. RECIPIENTS ARE ADVISED TO CONFIRM IN ADVANCE OF NEED THAT THE INFORMATION IS CURRENT, APPLICABLE, AND SUITABLE TO THEIR CIRCUMSTANCES.

LAST PAGE--SEE ATTACHMENT PAGE ENCLOSED--LAST PAGE

THIS MSDS COMPLIES WITH 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD)

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PRODUCT NAME: CUMENE
CAS NUMBER: 98 82 8

DATA SHEET NO: 0016041-004.006
PREPARED: 02/03/95
SUPERSEDES: 01/17/95
PRINT DATE: 02/03/95

SECTION I-PRODUCT IDENTIFICATION

GENERAL OR GENERIC ID: AROMATIC HYDROCARBON

SECTION II-COMPONENTS

IF PRESENT, IARC, NTP AND OSHA CARCINOGENS AND CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III SECTION 313 ARE IDENTIFIED IN THIS SECTION.

SEE DEFINITION PAGE FOR CLARIFICATION

INGREDIENT	PERCENT	NOTE
ISOPROPYLBENZENE	100	(1)
CAS #: 98-82-8 PEL: 50 PPM - SKIN	TLV: 50 PPM - SKIN	

(1): SKIN ABSORPTION MAY CONTRIBUTE TO THE OVERALL ABSORPTION OF THIS MATERIAL. APPROPRIATE MEASURES SHOULD BE TAKEN TO PREVENT ABSORPTION SO THAT THE TLV AND/OR PEL ARE NOT INVALIDATED. SEE SECTION V.
THIS CHEMICAL IS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF SARA TITLE III.

SECTION III-PHYSICAL DATA

PROPERTY	REFINEMENT		MEASUREMENT
BOILING POINT	FOR PRODUCT	XX	306.00 DEG F
		@	760.00 MMHG

CONTINUED ON PAGE: 2

SECTION III-PHYSICAL DATA (CONTINUED)

PROPERTY	REFINEMENT	MEASUREMENT
VAPOR PRESSURE	FOR PRODUCT	8.00 MMHG
		@ 68.00 DEG F
		(20.00 DEG C)
SPECIFIC VAPOR DENSITY	AIR = 1	4.14
SPECIFIC GRAVITY		.860
		@ 68.00 DEG F
		(20.00 DEG C)
PERCENT VOLATILES		100.00%
EVAPORATION RATE		SLOWER THAN ETHER

SECTION IV-FIRE AND EXPLOSION INFORMATION

FLASH POINT(TCC) 97.0 DEG F
(36.1 DEG C)
EXPLOSIVE LIMIT(PRODUCT) LOWER - .9%
EXTINGUISHING MEDIA: REGULAR FOAM OR CARBON DIOXIDE OR DRY CHEMICAL
HAZARDOUS DECOMPOSITION PRODUCTS: MAY FORM:, CARBON DIOXIDE AND CARBON MONOXIDE, VARIOUS HYDROCARBONS, ETC.
FIREFIGHTING PROCEDURES: WEAR A SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN THE POSITIVE PRESSURE DEMAND MODE WITH APPROPRIATE TURN-OUT GEAR AND CHEMICAL RESISTANT PERSONAL PROTECTIVE EQUIPMENT. REFER TO THE PERSONAL PROTECTIVE EQUIPMENT SECTION OF THIS MSDS.
SPECIAL FIRE & EXPLOSION HAZARDS: NEVER USE WELDING OR CUTTING TORCH ON OR NEAR DRUM (EVEN EMPTY) BECAUSE PRODUCT (EVEN JUST RESIDUE) CAN IGNITE EXPLOSIVELY.
ALL FIVE GALLON PAILS AND LARGER METAL CONTAINERS INCLUDING TANK CARS AND TANK TRUCKS SHOULD BE GROUNDED AND/OR BONDED WHEN MATERIAL IS TRANSFERRED.
VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL ALONG THE GROUND OR MAY BE

MOVED BY VENTILATION AND IGNITED BY PILOT LIGHTS, OTHER FLAMES, SPARKS, HEATERS, SMOKING, ELECTRIC MOTORS, STATIC DISCHARGE, OR OTHER IGNITION SOURCES AT LOCATIONS DISTANT FROM MATERIAL HANDLING POINT.

NFPA CODES: HEALTH- 2 FLAMMABILITY- 3 REACTIVITY- 0

CONTINUED ON PAGE: 3

SECTION V-HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVEL	50	PPM - SKIN
THRESHOLD LIMIT VALUE	50	PPM - SKIN

EFFECTS OF ACUTE OVEREXPOSURE:

EYES - EXPOSURE CAUSES EYE IRRITATION. SYMPTOMS MAY INCLUDE STINGING, TEARING, REDNESS, AND SWELLING.

SKIN - EXPOSURE MAY CAUSE MILD SKIN IRRITATION. PROLONGED OR REPEATED EXPOSURE MAY DRY THE SKIN. SYMPTOMS MAY INCLUDE REDNESS, BURNING, DRYING AND CRACKING, AND SKIN BURNS. PRE-EXISTING SKIN DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO THIS MATERIAL.

BREATHING - EXPOSURE TO VAPOR OR MIST IS POSSIBLE.

SHORT-TERM INHALATION TOXICITY IS LOW. BREATHING SMALL AMOUNTS DURING NORMAL HANDLING IS NOT LIKELY TO CAUSE HARMFUL EFFECTS; BREATHING LARGE AMOUNTS MAY BE HARMFUL.

SYMPTOMS MAY INCLUDE:

-IRRITATION (NOSE, THROAT, RESPIRATORY TRACT)- PRE-EXISTING LUNG DISORDERS, E.G. ASTHMA-LIKE CONDITIONS, MAY BE AGGRAVATED BY EXPOSURE TO THIS MATERIAL.

-CENTRAL NERVOUS SYSTEM DEPRESSION (DIZZINESS, DROWSINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE, UNCONSCIOUSNESS)-

-AND DEATH

SWALLOWING - SINGLE DOSE ORAL TOXICITY IS LOW. SWALLOWING SMALL AMOUNTS DURING NORMAL HANDLING IS NOT LIKELY TO CAUSE HARMFUL EFFECTS; SWALLOWING LARGE AMOUNTS MAY BE HARMFUL.

SYMPTOMS MAY INCLUDE:

-GASTROINTESTINAL IRRITATION (NAUSEA, VOMITING, DIARRHEA)-

THIS MATERIAL CAN ENTER THE LUNGS DURING SWALLOWING OR VOMITING AND CAUSE LUNG INFLAMMATION AND/OR DAMAGE.

FIRST AID:

IF ON SKIN: REMOVE CONTAMINATED CLOTHING. WASH EXPOSED AREA WITH SOAP AND WATER. IF SYMPTOMS PERSIST, SEEK MEDICAL ATTENTION. LAUNDER CLOTHING BEFORE REUSE.

IF IN EYES: IF SYMPTOMS DEVELOP, IMMEDIATELY MOVE INDIVIDUAL AWAY FROM EXPOSURE AND INTO FRESH AIR. FLUSH EYES GENTLY WITH WATER FOR AT LEAST 15 MINUTES WHILE HOLDING EYELIDS APART; SEEK IMMEDIATE MEDICAL ATTENTION.

IF SWALLOWED: DO NOT INDUCE VOMITING, KEEP PERSON WARM, QUIET, AND GET MEDICAL ATTENTION. ASPIRATION OF MATERIAL INTO THE LUNGS DUE TO VOMITING CAN CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL.

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SECTION V-HEALTH HAZARD DATA (CONTINUED)

IF BREATHED: IF SYMPTOMS DEVELOP, IMMEDIATELY MOVE INDIVIDUAL AWAY FROM EXPOSURE AND INTO FRESH AIR. SEEK IMMEDIATE MEDICAL ATTENTION; KEEP PERSON WARM AND QUIET. IF PERSON IS NOT BREATHING, BEGIN ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN.

PRIMARY ROUTE(S) OF ENTRY:

INHALATION
SKIN ABSORPTION
SKIN CONTACT

EFFECTS OF CHRONIC OVEREXPOSURE:

A 14 WEEK VAPOR INHALATION EXPOSURE OF MALE AND FEMALE LABORATORY RATS TO CUMENE (ISOPROPYLBENZENE), CAS# 98-82-8, RESULTED IN AN INCREASED INCIDENCE OF CATARACTS IN BOTH SEXES AND A DECREASE IN MOTOR ACTIVITY IN ONLY MALES. THESE CHANGES IN THE EYE AND CENTRAL NERVOUS SYSTEM WERE OBSERVED IN THER ATS AT EXPOSURES ABOVE THE PEL (50 PPM). THE BIOLOGICAL SIGNIFICANCE OF THESE FINDINGS TO MAN IS UNKNOWN.

OVEREXPOSURE TO THIS MATERIAL (OR ITS COMPONENTS) HAS BEEN SUGGESTED AS A CAUSE OF THE FOLLOWING EFFECTS IN LABORATORY ANIMALS, AND MAY AGGRAVATE PRE-EXISTING DISORDERS OF THESE ORGANS IN HUMANS:, LIVER ABNORMALITIES, KIDNEY DAMAGE

SECTION VI-REACTIVITY DATA

HAZARDOUS POLYMERIZATION: CANNOT OCCUR

STABILITY: STABLE
INCOMPATIBILITY: AVOID CONTACT WITH:, STRONG OXIDIZING AGENTS

SECTION VII-SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

SMALL SPILL: ABSORB LIQUID ON VERMICULITE, FLOOR ABSORBENT, OR OTHER ABSORBENT

CONTINUED ON PAGE: 5

SECTION VII-SPILL OR LEAK PROCEDURES (CONTINUED)

MATERIAL AND TRANSFER TO HOOD.
LARGE SPILL: ELIMINATE ALL IGNITION SOURCES (FLARES, FLAMES INCLUDING PILOT LIGHTS, ELECTRICAL SPARKS). PERSONS NOT WEARING PROTECTIVE EQUIPMENT SHOULD BE EXCLUDED FROM AREA OF SPILL UNTIL CLEAN-UP HAS BEEN COMPLETED. STOP SPILL AT SOURCE. PREVENT FROM ENTERING DRAINS, SEWERS, STREAMS OR OTHER BODIES OF WATER.PREVENT FROM SPREADING. IF RUNOFF OCCURS, NOTIFY AUTHORITIES AS REQUIRED. PUMP OR VACUUM TRANSFER SPILLED PRODUCT TO CLEAN CONTAINERS FOR RECOVERY. ABSORB UNRECOVERABLE PRODUCT.TRANSFER CONTAMINATED ABSORBENT, SOIL AND OTHER MATERIALS TO CONTAINERS FOR DISPOSAL.
PREVENT RUN-OFF TO SEWERS, STREAMS OR OTHER BODIES OF WATER. IF RUN-OFF OCCURS, NOTIFY PROPER AUTHORITIES AS REQUIRED, THAT A SPILL HAS OCCURED.

WASTE DISPOSAL METHOD:

SMALL SPILL: DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
LARGE SPILL: DISPOSE OF IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION VIII-PROTECTIVE EQUIPMENT TO BE USED

RESPIRATORY PROTECTION: IF WORKPLACE EXPOSURE LIMIT(S) OF PRODUCT OR ANY COMPONENT IS EXCEEDED (SEE SECTION II), A NIOSH/MSHA APPROVED AIR SUPPLIED RESPIRATOR IS ADVISED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. OSHA REGULATIONS ALSO PERMIT OTHER NIOSH/MSHA RESPIRATORS (NEGATIVE PRESSURE TYPE) UNDER SPECIFIED CONDITIONS (SEE YOUR INDUSTRIAL HYGIENIST). ENGINEERING OR ADMINISTRATIVE CONTROLS SHOULD BE IMPLEMENTED TO REDUCE EXPOSURE.
VENTILATION: PROVIDE SUFFICIENT MECHANICAL (GENERAL AND/OR LOCAL EXHAUST) VENTILATION TO MAINTAIN EXPOSURE BELOW TLV(S).
PROTECTIVE GLOVES: WEAR RESISTANT GLOVES SUCH AS:, POLYVINYL ALCOHOL
EYE PROTECTION: CHEMICAL SPLASH GOGGLES IN COMPLIANCE WITH OSHA REGULATIONS ARE ADVISED; HOWEVER, OSHA REGULATIONS ALSO PERMIT OTHER TYPE SAFETY GLASSES. CONSULT YOUR SAFETY REPRESENTATIVE.
OTHER PROTECTIVE EQUIPMENT: TO PREVENT REPEATED OR PROLONGED SKIN CONTACT, WEAR IMPERVIOUS CLOTHING AND BOOTS.

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SECTION IX-SPECIAL PRECAUTIONS OR OTHER COMMENTS

CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMPTIED.SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUES (VAPOR, LIQUID, AND/OR SOLID), ALL HAZARD PRECAUTIONS GIVEN IN THE DATA SHEET MUST BE OBSERVED.
THE INFORMATION ACCUMULATED HEREIN IS BELIEVED TO BE ACCURATE BUT IS NOT WARRANTED TO BE WHETHER ORIGINATING WITH THE COMPANY OR NOT. RECIPIENTS ARE ADVISED TO CONFIRM IN ADVANCE OF NEED THAT THE INFORMATION IS CURRENT, APPLICABLE, AND SUITABLE TO THEIR CIRCUMSTANCES.

LAST PAGE--SEE ATTACHMENT PAGE ENCLOSED--LAST PAGE

THIS MSDS COMPLIES WITH 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD)

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PRODUCT NAME: CUMENE
CAS NUMBER: 98 82 8

DATA SHEET NO: 0016041-004.007
PREPARED: 02/10/95
SUPERSEDES: 02/03/95
PRINT DATE: 02/10/95

SECTION I-PRODUCT IDENTIFICATION

GENERAL OR GENERIC ID: AROMATIC HYDROCARBON

SECTION II-COMPONENTS

IF PRESENT, IARC, NTP AND OSHA CARCINOGENS AND CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III SECTION 313 ARE IDENTIFIED IN THIS SECTION.

SEE DEFINITION PAGE FOR CLARIFICATION

INGREDIENT	PERCENT	NOTE
ISOPROPYLBENZENE	100	(1)
CAS #: 98-82-8 PEL: 50 PPM - SKIN	TLV: 50 PPM - SKIN	

(1): SKIN ABSORPTION MAY CONTRIBUTE TO THE OVERALL ABSORPTION OF THIS MATERIAL. APPROPRIATE MEASURES SHOULD BE TAKEN TO PREVENT ABSORPTION SO THAT THE TLV AND/OR PEL ARE NOT INVALIDATED. SEE SECTION V.
THIS CHEMICAL IS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF SARA TITLE III.

SECTION III-PHYSICAL DATA

PROPERTY	REFINEMENT		MEASUREMENT
BOILING POINT	FOR PRODUCT	XX	306.00 DEG F
		@	760.00 MMHG

CONTINUED ON PAGE: 2

SECTION III-PHYSICAL DATA (CONTINUED)

PROPERTY	REFINEMENT	MEASUREMENT
VAPOR PRESSURE	FOR PRODUCT	8.00 MMHG
	@	68.00 DEG F
	(	20.00 DEG C)
SPECIFIC VAPOR DENSITY	AIR = 1	4.14
SPECIFIC GRAVITY		.860
	@	68.00 DEG F
	(	20.00 DEG C)
PERCENT VOLATILES		100.00%
EVAPORATION RATE		SLOWER THAN ETHER

SECTION IV-FIRE AND EXPLOSION INFORMATION

FLASH POINT(TCC) 97.0 DEG F
(36.1 DEG C)
EXPLOSIVE LIMIT(PRODUCT) LOWER - .9%
EXTINGUISHING MEDIA: REGULAR FOAM OR CARBON DIOXIDE OR DRY CHEMICAL
HAZARDOUS DECOMPOSITION PRODUCTS: MAY FORM:, CARBON DIOXIDE AND CARBON MONOXIDE, VARIOUS HYDROCARBONS, ETC.
FIREFIGHTING PROCEDURES: WEAR A SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN THE POSITIVE PRESSURE DEMAND MODE WITH APPROPRIATE TURN-OUT GEAR AND CHEMICAL RESISTANT PERSONAL PROTECTIVE EQUIPMENT. REFER TO THE PERSONAL PROTECTIVE EQUIPMENT SECTION OF THIS MSDS.
SPECIAL FIRE & EXPLOSION HAZARDS: NEVER USE WELDING OR CUTTING TORCH ON OR NEAR DRUM (EVEN EMPTY) BECAUSE PRODUCT (EVEN JUST RESIDUE) CAN IGNITE EXPLOSIVELY.
ALL FIVE GALLON PAILS AND LARGER METAL CONTAINERS INCLUDING TANK CARS AND TANK TRUCKS SHOULD BE GROUNDED AND/OR BONDED WHEN MATERIAL IS TRANSFERRED.
VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL ALONG THE GROUND OR MAY BE

MOVED BY VENTILATION AND IGNITED BY PILOT LIGHTS, OTHER FLAMES, SPARKS, HEATERS, SMOKING, ELECTRIC MOTORS, STATIC DISCHARGE, OR OTHER IGNITION SOURCES AT LOCATIONS DISTANT FROM MATERIAL HANDLING POINT.

NFPA CODES: HEALTH- 2 FLAMMABILITY- 3 REACTIVITY- 0

CONTINUED ON PAGE: 3

SECTION V-HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVEL	50	PPM - SKIN
THRESHOLD LIMIT VALUE	50	PPM - SKIN

EFFECTS OF ACUTE OVEREXPOSURE:

EYES - EXPOSURE CAUSES EYE IRRITATION. SYMPTOMS MAY INCLUDE STINGING, TEARING, REDNESS, AND SWELLING.

SKIN - EXPOSURE MAY CAUSE MILD SKIN IRRITATION. PROLONGED OR REPEATED EXPOSURE MAY DRY THE SKIN. SYMPTOMS MAY INCLUDE REDNESS, BURNING, DRYING AND CRACKING, AND SKIN BURNS. PRE-EXISTING SKIN DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO THIS MATERIAL.

BREATHING - EXPOSURE TO VAPOR OR MIST IS POSSIBLE.

SHORT-TERM INHALATION TOXICITY IS LOW. BREATHING SMALL AMOUNTS DURING NORMAL HANDLING IS NOT LIKELY TO CAUSE HARMFUL EFFECTS; BREATHING LARGE AMOUNTS MAY BE HARMFUL.

SYMPTOMS MAY INCLUDE:

-IRRITATION (NOSE, THROAT, RESPIRATORY TRACT)- PRE-EXISTING LUNG DISORDERS, E.G. ASTHMA-LIKE CONDITIONS, MAY BE AGGRAVATED BY EXPOSURE TO THIS MATERIAL.

-CENTRAL NERVOUS SYSTEM DEPRESSION (DIZZINESS, DROWSINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE, UNCONSCIOUSNESS)-

-AND DEATH

SWALLOWING - SINGLE DOSE ORAL TOXICITY IS LOW. SWALLOWING SMALL AMOUNTS DURING NORMAL HANDLING IS NOT LIKELY TO CAUSE HARMFUL EFFECTS; SWALLOWING LARGE AMOUNTS MAY BE HARMFUL.

SYMPTOMS MAY INCLUDE:

-GASTROINTESTINAL IRRITATION (NAUSEA, VOMITING, DIARRHEA)-

THIS MATERIAL CAN ENTER THE LUNGS DURING SWALLOWING OR VOMITING AND CAUSE LUNG INFLAMMATION AND/OR DAMAGE.

FIRST AID:

IF ON SKIN: REMOVE CONTAMINATED CLOTHING. WASH EXPOSED AREA WITH SOAP AND WATER. IF SYMPTOMS PERSIST, SEEK MEDICAL ATTENTION. LAUNDER CLOTHING BEFORE REUSE.

IF IN EYES: IF SYMPTOMS DEVELOP, IMMEDIATELY MOVE INDIVIDUAL AWAY FROM EXPOSURE AND INTO FRESH AIR. FLUSH EYES GENTLY WITH WATER FOR AT LEAST 15 MINUTES WHILE HOLDING EYELIDS APART; SEEK IMMEDIATE MEDICAL ATTENTION.

IF SWALLOWED: DO NOT INDUCE VOMITING. THIS MATERIAL IS AN ASPIRATION HAZARD. IF INDIVIDUAL IS DROWSY OR UNCONSCIOUS, PLACE ON LEFT SIDE WITH THE HEAD DOWN. SEEK MEDICAL ATTENTION. IF POSSIBLE, DO NOT LEAVE INDIVIDUAL UNATTENDED.

CONTINUED ON PAGE: 4

SECTION V-HEALTH HAZARD DATA (CONTINUED)

IF BREATHED: IF SYMPTOMS DEVELOP, IMMEDIATELY MOVE INDIVIDUAL AWAY FROM EXPOSURE AND INTO FRESH AIR. SEEK IMMEDIATE MEDICAL ATTENTION; KEEP PERSON WARM AND QUIET. IF PERSON IS NOT BREATHING, BEGIN ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN.

PRIMARY ROUTE(S) OF ENTRY:

INHALATION
SKIN ABSORPTION
SKIN CONTACT

EFFECTS OF CHRONIC OVEREXPOSURE:

A 14 WEEK VAPOR INHALATION EXPOSURE OF MALE AND FEMALE LABORATORY RATS TO CUMENE (ISOPROPYLBENZENE), CAS# 98-82-8, RESULTED IN AN INCREASED INCIDENCE OF CATARACTS IN BOTH SEXES AND A DECREASE IN MOTOR ACTIVITY IN ONLY MALES. THESE CHANGES IN THE EYE AND CENTRAL NERVOUS SYSTEM WERE OBSERVED IN THER ATS AT EXPOSURES ABOVE THE PEL (50 PPM). THE BIOLOGICAL SIGNIFICANCE OF THESE FINDINGS TO MAN IS UNKNOWN.

OVEREXPOSURE TO THIS MATERIAL (OR ITS COMPONENTS) HAS BEEN SUGGESTED AS A CAUSE OF THE FOLLOWING EFFECTS IN LABORATORY ANIMALS, AND MAY AGGRAVATE PRE-EXISTING DISORDERS OF THESE ORGANS IN HUMANS:, LIVER ABNORMALITIES, KIDNEY DAMAGE

SECTION VI-REACTIVITY DATA

HAZARDOUS POLYMERIZATION: CANNOT OCCUR

STABILITY: STABLE
INCOMPATIBILITY: AVOID CONTACT WITH:, STRONG OXIDIZING AGENTS

SECTION VII-SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

SMALL SPILL: ABSORB LIQUID ON VERMICULITE, FLOOR ABSORBENT, OR OTHER ABSORBENT

CONTINUED ON PAGE: 5

SECTION VII-SPILL OR LEAK PROCEDURES (CONTINUED)

MATERIAL AND TRANSFER TO HOOD.
LARGE SPILL: ELIMINATE ALL IGNITION SOURCES (FLARES, FLAMES INCLUDING PILOT LIGHTS, ELECTRICAL SPARKS). PERSONS NOT WEARING PROTECTIVE EQUIPMENT SHOULD BE EXCLUDED FROM AREA OF SPILL UNTIL CLEAN-UP HAS BEEN COMPLETED. STOP SPILL AT SOURCE. PREVENT FROM ENTERING DRAINS, SEWERS, STREAMS OR OTHER BODIES OF WATER.PREVENT FROM SPREADING. IF RUNOFF OCCURS, NOTIFY AUTHORITIES AS REQUIRED. PUMP OR VACUUM TRANSFER SPILLED PRODUCT TO CLEAN CONTAINERS FOR RECOVERY. ABSORB UNRECOVERABLE PRODUCT.TRANSFER CONTAMINATED ABSORBENT, SOIL AND OTHER MATERIALS TO CONTAINERS FOR DISPOSAL.
PREVENT RUN-OFF TO SEWERS, STREAMS OR OTHER BODIES OF WATER. IF RUN-OFF OCCURS, NOTIFY PROPER AUTHORITIES AS REQUIRED, THAT A SPILL HAS OCCURED.

WASTE DISPOSAL METHOD:
SMALL SPILL: DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
LARGE SPILL: DISPOSE OF IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION VIII-PROTECTIVE EQUIPMENT TO BE USED

RESPIRATORY PROTECTION: IF WORKPLACE EXPOSURE LIMIT(S) OF PRODUCT OR ANY COMPONENT IS EXCEEDED (SEE SECTION II), A NIOSH/MSHA APPROVED AIR SUPPLIED RESPIRATOR IS ADVISED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. OSHA REGULATIONS ALSO PERMIT OTHER NIOSH/MSHA RESPIRATORS (NEGATIVE PRESSURE TYPE) UNDER SPECIFIED CONDITIONS (SEE YOUR INDUSTRIAL HYGIENIST). ENGINEERING OR ADMINISTRATIVE CONTROLS SHOULD BE IMPLEMENTED TO REDUCE EXPOSURE.
VENTILATION: PROVIDE SUFFICIENT MECHANICAL (GENERAL AND/OR LOCAL EXHAUST) VENTILATION TO MAINTAIN EXPOSURE BELOW TLV(S).
PROTECTIVE GLOVES: WEAR RESISTANT GLOVES SUCH AS:, POLYVINYL ALCOHOL
EYE PROTECTION: CHEMICAL SPLASH GOGGLES IN COMPLIANCE WITH OSHA REGULATIONS ARE ADVISED; HOWEVER, OSHA REGULATIONS ALSO PERMIT OTHER TYPE SAFETY GLASSES. CONSULT YOUR SAFETY REPRESENTATIVE.
OTHER PROTECTIVE EQUIPMENT: TO PREVENT REPEATED OR PROLONGED SKIN CONTACT, WEAR IMPERVIOUS CLOTHING AND BOOTS.

CONTINUED ON PAGE: 6

SECTION IX-SPECIAL PRECAUTIONS OR OTHER COMMENTS

CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMPTIED.SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUES (VAPOR, LIQUID, AND/OR SOLID), ALL HAZARD PRECAUTIONS GIVEN IN THE DATA SHEET MUST BE OBSERVED.
THE INFORMATION ACCUMULATED HEREIN IS BELIEVED TO BE ACCURATE BUT IS NOT WARRANTED TO BE WHETHER ORIGINATING WITH THE COMPANY OR NOT. RECIPIENTS ARE ADVISED TO CONFIRM IN ADVANCE OF NEED THAT THE INFORMATION IS CURRENT, APPLICABLE, AND SUITABLE TO THEIR CIRCUMSTANCES.

LAST PAGE--SEE ATTACHMENT PAGE ENCLOSED--LAST PAGE

THIS MSDS COMPLIES WITH 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD)

****

PRODUCT NAME: CUMENE
CAS NUMBER: 98 82 8

DATA SHEET NO: 0016041-004.008
PREPARED: 03/21/95
SUPERSEDES: 02/10/95
PRINT DATE: 03/24/95

SECTION I-PRODUCT IDENTIFICATION

GENERAL OR GENERIC ID: AROMATIC HYDROCARBON

SECTION II-COMPONENTS

IF PRESENT, IARC, NTP AND OSHA CARCINOGENS AND CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III SECTION 313 ARE IDENTIFIED IN THIS SECTION.

SEE DEFINITION PAGE FOR CLARIFICATION

INGREDIENT	PERCENT	NOTE
ISOPROPYLBENZENE	100	(1)
CAS #: 98-82-8 PEL: 50 PPM - SKIN	TLV: 50 PPM - SKIN	

(1): SKIN ABSORPTION MAY CONTRIBUTE TO THE OVERALL ABSORPTION OF THIS MATERIAL. APPROPRIATE MEASURES SHOULD BE TAKEN TO PREVENT ABSORPTION SO THAT THE TLV AND/OR PEL ARE NOT INVALIDATED. SEE SECTION V.
THIS CHEMICAL IS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF SARA TITLE III.

SECTION III-PHYSICAL DATA

PROPERTY	REFINEMENT		MEASUREMENT
BOILING POINT	FOR PRODUCT	XX	306.00 DEG F
		@	760.00 MMHG

CONTINUED ON PAGE: 2

SECTION III-PHYSICAL DATA (CONTINUED)

PROPERTY	REFINEMENT	MEASUREMENT
VAPOR PRESSURE	FOR PRODUCT	8.00 MMHG
	@	68.00 DEG F
	(	20.00 DEG C)
SPECIFIC VAPOR DENSITY	AIR = 1	4.14
SPECIFIC GRAVITY		.860
	@	68.00 DEG F
	(	20.00 DEG C)
PERCENT VOLATILES		100.00%
EVAPORATION RATE		SLOWER THAN ETHER

SECTION IV-FIRE AND EXPLOSION INFORMATION

FLASH POINT(TCC) 97.0 DEG F
(36.1 DEG C)
EXPLOSIVE LIMIT(PRODUCT) LOWER - .9%
EXTINGUISHING MEDIA: REGULAR FOAM OR CARBON DIOXIDE OR DRY CHEMICAL
HAZARDOUS DECOMPOSITION PRODUCTS: MAY FORM:, CARBON DIOXIDE AND CARBON MONOXIDE, VARIOUS HYDROCARBONS, ETC.
FIREFIGHTING PROCEDURES: WEAR A SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN THE POSITIVE PRESSURE DEMAND MODE WITH APPROPRIATE TURN-OUT GEAR AND CHEMICAL RESISTANT PERSONAL PROTECTIVE EQUIPMENT. REFER TO THE PERSONAL PROTECTIVE EQUIPMENT SECTION OF THIS MSDS.
SPECIAL FIRE & EXPLOSION HAZARDS: NEVER USE WELDING OR CUTTING TORCH ON OR NEAR DRUM (EVEN EMPTY) BECAUSE PRODUCT (EVEN JUST RESIDUE) CAN IGNITE EXPLOSIVELY.
ALL FIVE GALLON PAILS AND LARGER METAL CONTAINERS INCLUDING TANK CARS AND TANK TRUCKS SHOULD BE GROUNDED AND/OR BONDED WHEN MATERIAL IS TRANSFERRED.
VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL ALONG THE GROUND OR MAY BE

MOVED BY VENTILATION AND IGNITED BY PILOT LIGHTS, OTHER FLAMES, SPARKS, HEATERS, SMOKING, ELECTRIC MOTORS, STATIC DISCHARGE, OR OTHER IGNITION SOURCES AT LOCATIONS DISTANT FROM MATERIAL HANDLING POINT.

NFPA CODES: HEALTH- 2 FLAMMABILITY- 3 REACTIVITY- 0

CONTINUED ON PAGE: 3

SECTION V-HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVEL	50	PPM - SKIN
THRESHOLD LIMIT VALUE	50	PPM - SKIN

EFFECTS OF ACUTE OVEREXPOSURE:

EYES - EXPOSURE CAUSES EYE IRRITATION. SYMPTOMS MAY INCLUDE STINGING, TEARING, REDNESS, AND SWELLING.

SKIN - EXPOSURE MAY CAUSE MILD SKIN IRRITATION. PROLONGED OR REPEATED EXPOSURE MAY DRY THE SKIN. SYMPTOMS MAY INCLUDE REDNESS, BURNING, DRYING AND CRACKING, AND SKIN BURNS. PRE-EXISTING SKIN DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO THIS MATERIAL.

BREATHING - EXPOSURE TO VAPOR OR MIST IS POSSIBLE.

SHORT-TERM INHALATION TOXICITY IS LOW. BREATHING SMALL AMOUNTS DURING NORMAL HANDLING IS NOT LIKELY TO CAUSE HARMFUL EFFECTS; BREATHING LARGE AMOUNTS MAY BE HARMFUL.

SYMPTOMS MAY INCLUDE:

-IRRITATION (NOSE, THROAT, RESPIRATORY TRACT)- PRE-EXISTING LUNG DISORDERS, E.G. ASTHMA-LIKE CONDITIONS, MAY BE AGGRAVATED BY EXPOSURE TO THIS MATERIAL.

-CENTRAL NERVOUS SYSTEM DEPRESSION (DIZZINESS, DROWSINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE, UNCONSCIOUSNESS)-

-AND DEATH

SWALLOWING - SINGLE DOSE ORAL TOXICITY IS LOW. SWALLOWING SMALL AMOUNTS DURING NORMAL HANDLING IS NOT LIKELY TO CAUSE HARMFUL EFFECTS; SWALLOWING LARGE AMOUNTS MAY BE HARMFUL.

SYMPTOMS MAY INCLUDE:

-GASTROINTESTINAL IRRITATION (NAUSEA, VOMITING, DIARRHEA)-

THIS MATERIAL CAN ENTER THE LUNGS DURING SWALLOWING OR VOMITING AND CAUSE LUNG INFLAMMATION AND/OR DAMAGE.

FIRST AID:

IF ON SKIN: REMOVE CONTAMINATED CLOTHING. WASH EXPOSED AREA WITH SOAP AND WATER. IF SYMPTOMS PERSIST, SEEK MEDICAL ATTENTION. LAUNDER CLOTHING BEFORE REUSE.

IF IN EYES: IF SYMPTOMS DEVELOP, IMMEDIATELY MOVE INDIVIDUAL AWAY FROM EXPOSURE AND INTO FRESH AIR. FLUSH EYES GENTLY WITH WATER FOR AT LEAST 15 MINUTES WHILE HOLDING EYELIDS APART; SEEK IMMEDIATE MEDICAL ATTENTION.

IF SWALLOWED: DO NOT INDUCE VOMITING. THIS MATERIAL IS AN ASPIRATION HAZARD. IF INDIVIDUAL IS DROWSY OR UNCONSCIOUS, PLACE ON LEFT SIDE WITH THE HEAD DOWN. SEEK MEDICAL ATTENTION. IF POSSIBLE, DO NOT LEAVE INDIVIDUAL UNATTENDED.

CONTINUED ON PAGE: 4

SECTION V-HEALTH HAZARD DATA (CONTINUED)

IF BREATHED: IF SYMPTOMS DEVELOP, IMMEDIATELY MOVE INDIVIDUAL AWAY FROM EXPOSURE AND INTO FRESH AIR. SEEK IMMEDIATE MEDICAL ATTENTION; KEEP PERSON WARM AND QUIET. IF PERSON IS NOT BREATHING, BEGIN ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN.

PRIMARY ROUTE(S) OF ENTRY:

INHALATION
SKIN ABSORPTION
SKIN CONTACT

EFFECTS OF CHRONIC OVEREXPOSURE:

OVEREXPOSURE TO THIS MATERIAL (OR ITS COMPONENTS) HAS BEEN SUGGESTED AS A CAUSE OF THE FOLLOWING EFFECTS IN LABORATORY ANIMALS, AND MAY AGGRAVATE PRE-EXISTING DISORDERS OF THESE ORGANS IN HUMANS:, LIVER ABNORMALITIES, KIDNEY DAMAGE

SECTION VI-REACTIVITY DATA

HAZARDOUS POLYMERIZATION: CANNOT OCCUR

STABILITY: STABLE

INCOMPATIBILITY: AVOID CONTACT WITH:, STRONG OXIDIZING AGENTS

SECTION VII-SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

SMALL SPILL: ABSORB LIQUID ON VERMICULITE, FLOOR ABSORBENT, OR OTHER ABSORBENT MATERIAL AND TRANSFER TO HOOD.

CONTINUED ON PAGE: 5

SECTION VII-SPILL OR LEAK PROCEDURES (CONTINUED)

LARGE SPILL: ELIMINATE ALL IGNITION SOURCES (FLARES, FLAMES INCLUDING PILOT LIGHTS, ELECTRICAL SPARKS). PERSONS NOT WEARING PROTECTIVE EQUIPMENT SHOULD BE EXCLUDED FROM AREA OF SPILL UNTIL CLEAN-UP HAS BEEN COMPLETED. STOP SPILL AT SOURCE. PREVENT FROM ENTERING DRAINS, SEWERS, STREAMS OR OTHER BODIES OF WATER.PREVENT FROM SPREADING. IF RUNOFF OCCURS, NOTIFY AUTHORITIES AS REQUIRED. PUMP OR VACUUM TRANSFER SPILLED PRODUCT TO CLEAN CONTAINERS FOR RECOVERY. ABSORB UNRECOVERABLE PRODUCT.TRANSFER CONTAMINATED ABSORBENT, SOIL AND OTHER MATERIALS TO CONTAINERS FOR DISPOSAL.
PREVENT RUN-OFF TO SEWERS, STREAMS OR OTHER BODIES OF WATER. IF RUN-OFF OCCURS, NOTIFY PROPER AUTHORITIES AS REQUIRED, THAT A SPILL HAS OCCURED.

WASTE DISPOSAL METHOD:

SMALL SPILL: DISPOSE OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
LARGE SPILL: DISPOSE OF IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION VIII-PROTECTIVE EQUIPMENT TO BE USED

RESPIRATORY PROTECTION: IF WORKPLACE EXPOSURE LIMIT(S) OF PRODUCT OR ANY COMPONENT IS EXCEEDED (SEE SECTION II), A NIOSH/MSHA APPROVED AIR SUPPLIED RESPIRATOR IS ADVISED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. OSHA REGULATIONS ALSO PERMIT OTHER NIOSH/MSHA RESPIRATORS (NEGATIVE PRESSURE TYPE) UNDER SPECIFIED CONDITIONS (SEE YOUR INDUSTRIAL HYGIENIST). ENGINEERING OR ADMINISTRATIVE CONTROLS SHOULD BE IMPLEMENTED TO REDUCE EXPOSURE.
VENTILATION: PROVIDE SUFFICIENT MECHANICAL (GENERAL AND/OR LOCAL EXHAUST) VENTILATION TO MAINTAIN EXPOSURE BELOW TLV(S).
PROTECTIVE GLOVES: WEAR RESISTANT GLOVES SUCH AS:, POLYVINYL ALCOHOL
EYE PROTECTION: CHEMICAL SPLASH GOGGLES IN COMPLIANCE WITH OSHA REGULATIONS ARE ADVISED; HOWEVER, OSHA REGULATIONS ALSO PERMIT OTHER TYPE SAFETY GLASSES. CONSULT YOUR SAFETY REPRESENTATIVE.
OTHER PROTECTIVE EQUIPMENT: TO PREVENT REPEATED OR PROLONGED SKIN CONTACT, WEAR IMPERVIOUS CLOTHING AND BOOTS.

CONTINUED ON PAGE: 6

SECTION IX-SPECIAL PRECAUTIONS OR OTHER COMMENTS

CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMPTIED.SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUES (VAPOR, LIQUID, AND/OR SOLID), ALL HAZARD PRECAUTIONS GIVEN IN THE DATA SHEET MUST BE OBSERVED.
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LAST PAGE--SEE ATTACHMENT PAGE ENCLOSED--LAST PAGE

Ashland Chemical Co.

Date Prepared: 11/30/95
Date Printed: 12/02/95
MSDS No: 0016041-005.001

CUMENE

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1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Material Identity
Product Name: CUMENE
General or Generic ID: AROMATIC HYDROCARBON

Company
Ashland Chemical Co.
P.O. Box 2219
Columbus, OH 43216
614-790-3333

Emergency Telephone Number:
1-800-ASHLAND (1-800-274-5263)
24 hours everyday

Regulatory Information Number:
1-800-325-3751

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2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient(s)	CAS Number	% (by weight)
ISOPROPYLBENZENE	98-82-8	100.0

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3. HAZARDS IDENTIFICATION

Potential Health Effects

Eye
Exposure causes eye irritation. Symptoms may include stinging, tearing, redness, and swelling.

Skin
Exposure may cause mild skin irritation. Prolonged or repeated exposure may dry the skin. Symptoms may include redness, burning, drying and cracking, and skin burns. Skin absorption is possible, but harmful effects are not expected from this route of exposure under normal conditions of handling and use.

Swallowing
Single dose oral toxicity is low. Swallowing small amounts during normal handling is not likely to cause harmful effects; swallowing large amounts may be harmful. This material can enter the lungs during swallowing or vomiting and cause lung inflammation and/or damage.

Inhalation
Exposure to vapor or mist is possible. Short-term inhalation toxicity is low. Breathing small amounts during normal handling is not likely to cause harmful effects; breathing large amounts may be harmful. Symptoms are more typically seen at air concentrations exceeding the recommended exposure limits.

Symptoms of Exposure
Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: gastrointestinal irritation (nausea, vomiting, diarrhea), irritation (nose, throat, respiratory tract), central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness), reversible behavioral changes, muscle weakness, mild, reversible liver effects, respiratory depression, narcosis (characterized by stupor or insensibility), and death.

Continued on next page

Target Organ Effects
Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals, and may aggravate pre-existing disorders of these organs in humans: liver abnormalities, kidney damage.
Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans, and may aggravate pre-existing disorders of these organs: liver abnormalities.

Developmental Information
Cumene did not cause harm to the unborn pup in laboratory animal studies, even at levels which were harmful to the pregnant animal.

Cancer Information
There are no data available for assessing carcinogenic risk resulting from exposure to this material. This material is not listed as a carcinogen by IARC, NTP or OSHA.

Other Health Effects
No data

Primary Route(s) of Entry
Inhalation, Skin absorption, Skin contact.

4. FIRST AID MEASURES

Eyes
If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

Skin
Remove contaminated clothing. Wash exposed area with soap and water. If symptoms persist, seek medical attention. Launder clothing before reuse.

Swallowing
Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

Inhalation
If symptoms develop, immediately move individual away from exposure and into fresh air. Seek immediate medical attention; keep person warm and quiet. If person is not breathing, begin artificial respiration. If breathing is difficult, administer oxygen.

Note to Physicians
Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: liver.

Continued on next page

5. FIRE FIGHTING MEASURES

Flash Point
97.0 F (36.1 C) TCC

Explosive Limit
Lower .9 %

Autoignition Temperature
No data

Hazardous Products of Combustion
May form:, carbon dioxide and carbon monoxide, various hydrocarbons.

Fire and Explosion Hazards
Vapors are heavier than air and may travel along the ground or may be moved by ventilation and ignited by pilot lights, other flames, sparks, heaters, smoking, electric motors, static discharge, or other ignition sources at locations distant from material handling point. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively.

Extinguishing Media
regular foam, carbon dioxide, dry chemical.

Fire Fighting Instructions
Wear a self-contained breathing apparatus with a full facepiece operated in the positive pressure demand mode with appropriate turn-out gear and chemical resistant personal protective equipment. Refer to the personal protective equipment section of this MSDS.

NFPA Rating
Health - 2, Flammability - 3, Reactivity - 0

6. ACCIDENTAL RELEASE MEASURES

Small Spill
Absorb liquid on vermiculite, floor absorbent, or other absorbent material and transfer to hood.

Large Spill
Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source. Prevent from entering drains, sewers, streams or other bodies of water. Prevent from spreading. If runoff occurs, notify authorities as required. Pump or vacuum transfer spilled product to clean containers for recovery. Absorb unrecoverable product. Transfer contaminated absorbent, soil and other materials to containers for disposal. Prevent run-off to sewers, streams or other bodies of water. If run-off occurs, notify proper authorities as required, that a spill has occured.

Continued on next page

7. HANDLING AND STORAGE

Handling

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. All five gallon pails and larger metal containers including tank cars and tank trucks should be grounded and/or bonded when material is transferred. Hydrocarbon solvents are basically non-conductors of electricity and can become electrostatically charged during mixing, filtering or pumping at high flow rates. If this charge reaches a sufficiently high level, sparks can form that may ignite the vapors of flammable liquids.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye Protection

Chemical splash goggles in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. Consult your safety representative.

Skin Protection

Wear resistant gloves (consult your safety equipment supplier). To prevent repeated or prolonged skin contact, wear impervious clothing and boots..

Respiratory Protections

If workplace exposure limit(s) of product or any component is exceeded (see exposure guidelines), a NIOSH/MSHA approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators (negative pressure type) under specified conditions (see your industrial hygienist). Engineering or administrative controls should be implemented to reduce exposure.

Engineering Controls

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV(s).

Exposure Guidelines
Component

ISOPROPYLBENZENE (98-82-8)
OSHA VPEL 50.00 ppm - TWA (Skin)
ACGIH TLV 50.00 ppm - TWA (Skin)

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point

(for product) 306.0 F (152.2 C) @ 760 mmHg

Vapor Pressure

(for product) 8.000 mmHg @ 68.00 F

Continued on next page

Specific Vapor Density
4.140 @ AIR=1

Specific Gravity
.860 @ 68.00 F

Liquid Density
7.200 lbs/gal @ 60.00 F
.865 kg/l @ 16.00 C

Percent Volatiles
100.0 %

Evaporation Rate
SLOWER THAN ETHYL ETHER

Appearance
No data

State
LIQUID

Physical Form
NEAT

Color
COLORLESS

Odor
AROMATIC

pH
Not applicable

10. STABILITY AND REACTIVITY

Hazardous Polymerization
Product will not undergo hazardous polymerization.

Hazardous Decomposition
May form:, carbon dioxide and carbon monoxide, various hydrocarbons.

Chemical Stability
Stable.

Incompatibility
Avoid contact with:, strong oxidizing agents.

11. TOXICOLOGICAL INFORMATION

Continued on next page

12. ECOLOGICAL INFORMATION

13. DISPOSAL CONSIDERATION

Waste Management Information
Dispose of in accordance with all applicable local, state and federal regulations.

14. TRANSPORT INFORMATION

DOT Information - 49 CFR 172.101
DOT Description:
NAPHTHA, SOLVENT,3 (FLAMMABLE LIQUID),UN1256,III

Container/Mode:
55 GAL DRUM/TRUCK PACKAGE

NOS Component:
CUMENE

RQ (Reportable Quantity) - 49 CFR 172.101

Product Quantity (lbs)	Component
5000	CUMENE

15. REGULATORY INFORMATION

US Federal Regulations
TSCA (Toxic Substances Control Act) Status
TSCA (UNITED STATES) The intentional ingredients of this product are listed.

CERCLA RQ - 40 CFR 302.4

Component	RQ (lbs)
CUMENE	5000

SARA 302 Components - 40 CFR 355 Appendix A
None

Section 311/312 Hazard Class - 40 CFR 370.2
Immediate(X) Delayed(X) Fire(X) Reactive( ) Sudden Release of Pressure( )

SARA 313 Components - 40 CFR 372.65

Section 313 Component(s)	CAS Number	Max %
CUMENE	98-82-8	100.00

International Regulations

Continued on next page

Inventory Status
Not determined

State and Local Regulations
California Proposition 65
None

New Jersey RTK Label Information

CUMENE	98-82-8

Pennsylvania RTK Label Information

BENZENE, (1-METHYLETHYL)-	98-82-8

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.